

Commercial Truck and Bus Safety

Synthesis 2

Security Measures in the Commercial Trucking and Bus Industries

A Synthesis of Safety Practice

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Safety Administration

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Synthesis 2

Security Measures in the Commercial Trucking and Bus Industries

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Science Applications International Corporation
McLean, VA

SUBJECT AREAS

Operations and Safety • Public Transit • Freight Transportation

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COMMERCIAL TRUCK AND BUS SAFETY SYNTHESIS PROGRAM

Safety is a principal focus of government agencies and private-sector organizations concerned with transportation. The Federal Motor Carrier Safety Administration (FMCSA) was established within the Department of Transportation on January 1, 2000, pursuant to the Motor Carrier Safety Improvement Act of 1999. Formerly a part of the Federal Highway Administration, the FMCSA's primary mission is to prevent commercial motor vehicle-related fatalities and injuries. Administration activities contribute to ensuring safety in motor carrier operations through strong enforcement of safety regulations, targeting high-risk carriers and commercial motor vehicle drivers; improving safety information systems and commercial motor vehicle technologies; strengthening commercial motor vehicle equipment and operating standards; and increasing safety awareness. To accomplish these activities, the Administration works with federal, state, and local enforcement agencies, the motor carrier industry, labor, safety interest groups, and others. In addition to safety, security-related issues are also receiving significant attention in light of the terrorist events of September 11, 2001.

Administrators, commercial truck and bus carriers, government regulators, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and undervalued. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information available on nearly every subject of concern to commercial truck and bus safety. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the commercial truck and bus industry, the Commercial Truck and Bus Safety Synthesis Program (CTBSSP) was established by the FMCSA to undertake a series of studies to search out and synthesize useful knowledge from all available sources and to prepare documented reports on current practices in the subject areas of concern. Reports from this endeavor constitute the CTBSSP Synthesis series, which collects and assembles the various forms of information into single concise documents pertaining to specific commercial truck and bus safety problems or sets of closely related problems.

The CTBSSP, administered by the Transportation Research Board, began in early 2002 in support of the FMCSA's safety research programs. The program initiates three to four synthesis studies annually that address concerns in the area of commercial truck and bus safety. A synthesis report is a document that summarizes existing practice in a specific technical area based typically on a literature search and a survey of relevant organizations (e.g., state DOTs, enforcement agencies, commercial truck and bus companies, or other organizations appropriate for the specific topic). The primary users of the syntheses are practitioners who work on issues or problems using diverse approaches in their individual settings. The program is modeled after the successful synthesis programs currently operated as part of the National Cooperative Highway Research Program (NCHRP) and the Transit Cooperative Research Program (TCRP).

This synthesis series reports on various practices, making recommendations where appropriate. Each document is a compendium of the best knowledge available on measures found to be successful in resolving specific problems. To develop these syntheses in a comprehensive manner and to ensure inclusion of significant knowledge, available information assembled from numerous sources, including a large number of relevant organizations, is analyzed.

For each topic, the project objectives are (1) to locate and assemble documented information; (2) to learn what practice has been used for solving or alleviating problems; (3) to identify all ongoing research; (4) to learn what problems remain largely unsolved; and (5) to organize, evaluate, and document the useful information that is acquired. Each synthesis is an immediately useful document that records practices that were acceptable within the limitations of the knowledge available at the time of its preparation.

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Each year, potential synthesis topics are solicited through a broad industry-wide process. Based on the topics received, the Program Oversight Panel selects new synthesis topics based on the level of funding provided by the FMCSA. In late 2002, the Program Oversight Panel selected two task-order contractor teams through a competitive process to conduct syntheses for Fiscal Years 2003 through 2005.

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FOREWORD

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This synthesis will be of use to commercial truck and bus carriers and others interested in improving commercial vehicle security in a post–September 11, 2001, environment. Prepared by Science Applications International Corporation (SAIC), this synthesis reports on the status of terrorist-related security measures being taken in the commercial trucking and bus industries. The synthesis addresses key security threats to the commercial trucking and bus industries; risk management techniques available to assess potential threats; employee/driver hiring procedures; current security procedures at commercial truck and bus training schools; security procedures and technologies employed by carriers; issues associated with implementation and/or use of specific security measures; ongoing security research activities; and, to a limited extent, international experience with security measures for commercial truck and bus carriers. The synthesis is based on information collected through a literature search and surveys of commercial truck and bus carriers and other relevant organizations.

Administrators, commercial truck and bus carriers, government regulators, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and underevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

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For each topic, the project objectives are (1) to locate and assemble documented information; (2) to learn what practices have been used for solving or alleviating problems; (3) to identify relevant, ongoing research; (4) to learn what problems remain largely unsolved; and (5) to organize, evaluate, and document the useful information that is acquired. Each synthesis is an immediately useful document that records practices that were acceptable within the limitations of the knowledge available at the time of its preparation.

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CHAPTER 1

SUMMARY AND CONCLUSIONS

1.1 INTRODUCTION

In response to the increasing frequency and severity of terrorist acts around the world and against U.S. targets and as a direct consequence of the terrorist acts committed on September 11, 2001 (9/11), significant concerns exist about the potential threat of terrorism against trucking and commercial bus systems. These concerns include the use of transportation assets (particularly vehicles and cargo) as instruments for committing terrorist acts. To assist in addressing these concerns, this synthesis study was conducted to review and summarize the terrorist-related security status of the commercial trucking and bus industries. The purpose of this synthesis study is to determine how these industries were affected by the events of 9/11, what security improvements have been accomplished, and what improvements are underway. The scope identified for this study includes eight topic areas. These are the following:

1. Identification of the key threats to the commercial trucking and bus industries;
2. Identification of risk management techniques available to assess potential security threats;
3. Identification of employee/driver hiring procedures, including employee identification/verification techniques, that can enhance security and that have been shown to be effective;
4. Identification of current security procedures at commercial truck and bus training schools and potential threats, including student identification/verification procedures;
5. Identification of security procedures and how technology can or is being used to address security issues;
6. Identification of issues or problems associated with the implementation and/or use of specific security measures;
7. A summary of security research and development related to the commercial trucking and bus industries and what other research would be beneficial; and
8. Information on what has been done in other countries to enhance the security of commercial truck and bus safety, particularly in countries that have had to deal with significant terrorist activity.

This synthesis study is based on a survey of commercial trucking and bus companies. The survey was developed specif-

ically to address the eight issue areas listed above. Some supplemental information is provided from interviews with government and industry representatives and available literature. The survey consisted of written questionnaires that were typically answered in telephone and personal interviews with high-level representatives of the commercial trucking and bus companies. The survey population contained a disproportionately greater number of large companies and companies that have more extensive security programs than companies in the industry as a whole. Forty-one of the 91 companies contacted for interviews provided responses. The survey response statistics are summarized in Table 1-1. Additional limited-scope interviews were conducted with training schools, two federal agencies, and two embassies. The major value-added component of this study is the information obtained through the industry survey, which provides a valuable glimpse into the opinions of surveyed trucking and bus industry members.

1.2 COMMERCIAL TRUCKING INDUSTRY FINDINGS

The vision of the terrorist threat within the trucking industry is not uniform. However, there is a general concern: the use of stolen trucks and cargo to carry out a terrorist act. Other perceived threats include the transport of illicit cargo and the use of criminal means (e.g., vandalism) to support terrorist groups. Some commercial trucking companies, as distinct from rental and lease companies, see no terrorist threat at all. This observation is not unexpected considering that the truck industry assets useful in the commission of a terrorist act are readily available through legitimate means and at low cost (i.e., trucks can be easily leased, rented, borrowed, and/or bought on credit). Indeed, the most noted terrorist acts conducted in the United States with trucks involved leased trucks with legally obtained cargo (i.e., the 1993 World Trade Center bombing in New York City and the 1995 bombing of the Murrah Federal Building in Oklahoma City).

Although there is little uniformity in the perception of the specific threat, the level of general concern is high as revealed by the security measures implemented after 9/11. These measures include broad-based and significant changes in policies and practices including issuance of employee identification (ID), measures to guard property, improvement of communications with cell phones and two-way radio, provision of

TABLE 1-1 Number of questionnaires distributed/returned by category

Company Type	Number of Companies Contacted	Number of Respondents	Percentage of Respondents
Trucking Companies	52	20	38%
Truck Driver Training Schools	5	3	60%
Tour/Charter Bus Companies	20	9	45%
Motorcoach/Bus Companies	9	7	78%
Embassies	5	2	40%
TOTAL	91	41	45%

Source: SAIC, McLean, VA, December 2002.

focused training, and significant changes in hiring practices (e.g., more thorough background checks). “Low-cost/no-cost” procedural measures such as route changes to avoid higher risk areas, parking in more visible areas, vehicle inspections and confirmation of cargo seal integrity after stops, obtaining driver information prior to pick-ups and ID confirmation on arrival, and provision of cargo contents on only a need-to-know basis were mentioned by some companies. However, survey responses indicate that these measures may not be currently used to their fullest extent. The greatest security enhancement will probably be achieved when approached on both procedural and technological levels.

Many companies indicated plans for implementation of further security improvements. Unlike the procedural measures already implemented, planned measures are largely technology-based devices to track, alert, communicate, and observe. Many, and possibly adequate, technology measures/options exist to meet most needs, with one key problem—cost. While cost is the most commonly listed problem, there was also frequent statement of the need for establishment of a uniform federal operator (driver) identification system. The industry research needs identified by the survey respondents are largely addressed in ongoing government and industry programs.

The curriculum of driving schools is not a factor in most of the surveyed trucking company security strategies because few of these companies use drivers directly from training schools. Those that do use drivers directly from training schools rely on in-house training to make the drivers conform to company-specific practices. Because the survey population is biased toward larger companies, it is possible that reliance on training schools and their curricula may be of greater importance for smaller companies. Schools that were contacted expressed awareness of the terrorist threat to their industry, but they have generally made only minor changes in curriculum or admissions. Survey responses also suggest that the U.S. trucking industry does not follow anti-terrorist activities in other countries, thus international security strategies appear to have little effect on an operator’s security policy.

Uncertain risks of a threat in conjunction with the questionable effectiveness of anti-theft security measures, tight operating margins, and competition make it difficult for trucking companies to justify the internalization (i.e., pay-

ment for security measures) of potential external (noncompany) losses such as the destruction of a building, tunnel, or pipeline. Despite these issues, the trucking industry may benefit from the following measures, some of which already exist or are under development:

- Widely disseminate a list of trucking industry, threat-specific, low-cost/no-cost security measures and a guide for their application. Lists containing low-cost/no-cost security measures have been compiled in response to recommendations by the American Trucking Associations (ATA), the American Society of Safety Engineers (ASSE), and the Federal Bureau of Investigation (FBI). Conduct follow-up surveys/analysis to determine awareness, adoption, effectiveness, and relevance of these measures.
- Conduct a quantitative review of potential terrorist threats, risk, and consequences along with mitigation options by industry segments to determine who is exposed, how much they are exposed, and what to do about it. This is an essential first step in helping the industry assess its risks via a relatively uniform process.
- Develop and disperse a self-assessment tool for organizations to assess their risk and to evaluate specific mitigating options. The assessment strategies employed by the surveyed trucking companies were quite diverse, generally simple, and sometimes nonexistent. The trucking industry would likely benefit from a more specific and uniform approach.
- Develop a technology evaluation clearinghouse to gauge the effectiveness of technology-based security measures. Some survey respondents expressed a feeling of being overwhelmed by the many technological options, making it difficult to confidently choose a technology. ATA has proposed technology evaluations as part of its Anti-terrorism Action Plan (ATAP); these need to be coordinated with ongoing FMCSA/U.S. DOT technology evaluations and the results made readily available to facilitate the best use of the trucking industry’s financial resources.
- Provide incentives to use more anti-theft measures. Most, if not all, trucking industry anti-terrorist security measures are dual-purpose (anti-theft) and are justified by their dual use.

- Develop centralized cargo-theft reporting and explore the appropriateness of mandated reporting of theft to better assist future assessments of cargo-theft risks. A primary difficulty to overcome may be that thefts are underreported to reduce increases in insurance costs.
- Facilitate more rapid implementation of the ATA's Highway Watch Program (HWP) and the Trucking Information Sharing and Analysis Center (TrucksISAC), a liaison to the FBI and Department of Homeland Security (DHS). The HWP provides a call center for truckers to report observations that may affect safety and security, but it is currently active in only about half of the states. HWP communication should be two-way to keep truckers informed of evolving warnings and recommended actions, including DHS color-coded security level warnings.
- Track and test security effectiveness and help the industry deal with threat/alert fatigue. Because terrorist acts are expected to be infrequent events, fatigue, complacency, and apathy are likely to set in. The industry should explore ways to address these and other symptoms of security erosion.
- Implement a federal driver's license or federal ID and establish an information clearinghouse and uniform minimum standards for background checks and hiring (all of these are common comments from trucking industry survey respondents). The U.S. DOT/Transportation Security Administration (TSA) Transportation Worker Identification Card (TWIC) program has the potential to address these issues, but it is still in its development phase.

1.3 COMMERCIAL BUS INDUSTRY FINDINGS

For a terrorist, the U.S. commercial bus system is a low-risk, high-visibility, high-impact target, which provides an opportunity to kill a large number of people, destroy property, and cause extensive economic and psychological damage. In the aftermath of an attack, the loss of trust in the security of the bus system could cause lasting major transportation and economic disruptions over a wide geographic area. Although this threat and vulnerability has been known for many years, the U.S. commercial bus system has not experienced a terrorist act and, as a result, did not adopt any significant measures to mitigate such an attack prior to 9/11. The events of 9/11, however, led many commercial bus operators to face these security issues and to begin evaluations of what to do and how to do it.

Industry survey responses reveal that an explosion on a bus, in the form of a suicide bomber or through the placement of an explosive device in the luggage, is the main (perceived) threat. Additional risks, not listed by the respondents, include acts that are known to have occurred on buses outside of the United States (e.g., car bombs, shootings, and mines), risks at bus stops and stations, and risks of on-board fuel

(i.e., 150 gallons of diesel or compressed natural gas at 3600 psi). A formal risk-exposure assessment could put these risks in relative perspective.

The commercial bus industry and the security community understand that the need for quick public access and egress to buses renders many effective countermeasures costly and impractical (e.g., metal and explosive detection and body and bag searches). Even with strict and controlled access and egress, buses travel on public roads where they are exposed to external attacks (e.g., car bombs and hijackings). Despite these difficulties, a large number of security measures were put in place after 9/11, predominantly by the motorcoach industry. The motorcoach industry reports the installation of cell phones, emergency phones, surveillance cameras, and security guards, as well as the provision of focused training and upgraded hiring procedures. The tour/charter bus industry appears to have been less aggressive in implementing revised security measures.

From a cost and operational perspective, it would be impractical to outright impossible to make the bus system beyond the reach of a determined and well-executed terrorist scheme. However, there are many simple, low-cost and no-cost measures (e.g., route changes, locking baggage doors that are not within employee view, choice of parking areas, and walk-around inspections at all stops) as well as more costly, but still affordable security strategies (e.g., two-way communication, awareness training, transparent driver dividers, panic buttons, and passenger compartment night lights), which can make the commercial bus system a less vulnerable and less attractive target and one that is better able to react to and mitigate the effects of a terrorist event. Many proactive bus operators have decided to find their cost/benefit equilibrium and have implemented their own set of security measures. Others are waiting for the federal government to pass regulations and present security guidelines.

The commercial bus industry may benefit from the following measures, some of which already exist or are under development, but none of which are common among the companies surveyed:

- Widely disseminate a list of bus industry, threat-specific, low-cost/no-cost security measures and a guide for their application. Lists containing low-cost/no-cost security measures have been compiled in response to recommendations by the ATA, ASSE, and the FBI. Conduct follow-up surveys/analysis to determine industry awareness and adoption of these measures, as well as their effectiveness and relevance.
- Provide awareness training with special emphasis on how to spot and respond to suspicious activities (reading warning signs has been one of the most effective measures used in Israel). The American Bus Association (ABA) is currently considering joining the ATA HWP. If this occurs, HWP awareness training could include relevant warning signs.

- Conduct a quantitative and separate review of the motor-coach and tour/charter industries' potential terrorist threats, risks, and consequences along with mitigation options. This is an essential first step in helping the industry assess its risks via a relatively uniform process.
- Develop and disperse self-assessment tools or uniform procedures for assessing threats and evaluating specific mitigating options within the bus industry. The assessment strategies employed by the surveyed bus companies were either simple or nonexistent. The industry would likely benefit from a more uniform, bus-specific approach.
- Develop uniform minimum standards for background checks and hiring practices and establish a clearinghouse

for obtaining background information. The U.S. DOT/TSA TWIC program has the potential to address these issues, but it is still in its development phase.

- Industry establishment of an alert notification system. If ABA joins ATA's HWP, there will be a call center for driver reporting of observations that may affect safety and security. This communication should be two-way to keep drivers informed of evolving warnings and recommended actions, including DHS color-coded security level warnings.
 - Like the trucking industry, the bus industry should track or test security effectiveness and find measures for dealing with threat/alert fatigue.
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CHAPTER 2

INTRODUCTION

2.1 BACKGROUND

As a result of the increasing frequency and severity of terrorist acts around the world (e.g., Israel, Egypt, India, Japan, Algeria, and Russia), acts in the United States, and acts committed abroad against the United States, both the U.S. government and the general public have become increasingly concerned about terrorist threats to the transportation system. The events of 9/11 initiated a national call to action to address transportation security gaps with particular attention to the potential use of transportation vehicles as instruments for committing terrorist acts. Protecting our trucking and bus system quickly became a very high-level priority. The Commercial Truck and Bus Safety Synthesis Program (CTBSSP) embarked on this effort to determine what security improvements have been accomplished and what improvements are underway in the trucking and commercial bus industries. (Please note that in this effort, commercial bus services are defined as intercity and tour/charter services. Transit bus services are not included.)

2.2 PURPOSE

The purpose of this study is to gain a better understanding of how the U.S. commercial trucking and bus industries have been affected by and responded to 9/11. This study is to provide a synthesis that reflects the general status of anti-terrorist security measures in the trucking and bus industries and to suggest future efforts that may be beneficial.

2.3 SCOPE

The scope of this study includes the following eight topic areas:

1. Identification of the key threats to the commercial trucking and bus industries;
2. Identification of risk management techniques available to assess potential security threats;
3. Identification of employee/driver hiring procedures, including employee identification/verification tech-

niques, that can enhance security and that have been shown to be effective;

4. Identification of current security procedures at commercial truck and bus training schools and potential threats, including student identification/verification procedures;
5. Identification of security procedures and how technology can or is being used to address security issues;
6. Identification of issues or problems associated with the implementation and/or use of specific security measures;
7. A summary of security research and development related to the commercial trucking and bus industries and what other research would be beneficial; and
8. Information on what has been done in other countries to enhance the security of commercial truck and bus safety, particularly in countries that have had to deal with significant terrorist activity.

These topics are examined through the results of an industry survey that was developed and fielded in the last quarter of 2002. The survey respondents include trucking companies, driver training schools, and commercial bus operators. Further subdivisions by function such as Less Than Truck Load (LTL) and hazardous materials (HAZMAT) are provided to the extent possible. Supplemental information in the forms of literature, Internet web pages, and discussions with government and industry representatives that were not part of the formal survey were also used in this study, particularly on topics for which survey results provided minimal information.

2.4 DATA COLLECTION APPROACH

A list of 14 open-ended questions (i.e., no multiple choice answers), based very closely on the eight topics of interest, was developed. The questionnaires were slightly modified for each of the four major industry subgroups (trucking, truck driver training school, motorcoach, and tour/charter bus) to reflect their relevance to that part of the industry. At the suggestion of the National Tank Truck Carriers (NTTC), two questions (#15 and #16) were added. Each questionnaire was

mailed with two letters, one from TRB to introduce Science Applications International Corporation (SAIC) and the project and another from SAIC to provide instructions to the respondents. The two letters are provided in Appendix A. The questionnaires (one for commercial trucks and one for buses) are provided in Appendix B.

The target survey group consisted of high-level company officials, preferably with a direct line responsibility for security. When the officer in charge of security was not known, the questionnaire was addressed either to the chief operations officer or to the president of the company. The target list was developed with the help of industry contacts, including several industry associations. The target list also included some randomly selected public trucking and bus companies listed on the New York Stock Exchange and NASDAQ. This biased the survey toward large companies. The questionnaire packets were mailed to 52 trucking companies, 29 bus companies, 5 driver training schools, and 5 embassies (see Table 2-1). The response instructions called for a scheduled telephone interview with an option for responding in writing by email and regular mail.

In addition to the mailings from TRB and SAIC, the ATA, the NTTC, the ABA, and the Institute for Makers of Explosives (IME) agreed to distribute questionnaires to a subset of their members. These industry associations provided respondents with the option of remaining anonymous and the choice of returning the questionnaire to SAIC or returning it to the industry association. About 80 questionnaires were distributed by these organizations, but their response rates were very low. Only two responses were received from respondents who were not on the original mailing list.

The majority of responses came after telephone contacts with the respondent organizations. About a dozen companies refused to participate as a matter of corporate policy. Nearly 20 percent of the responses were obtained through telephone interviews, and the rest were received as written responses via email or facsimile. The survey responses were collected from mid-September through the end of November 2002.

Limited-scope interviews were conducted with driver training schools, two federal agencies, and two embassies. Secondary information was obtained from published and nonpublished sources including ongoing projects at TRB, U.S. DOT,

FHWA, AASHTO, FTA, and the Volpe National Transportation Systems Center.

2.5 ANALYTICAL APPROACH

A major value-added component of this study is the information obtained through survey responses directly from the trucking and commercial bus industries and related organizations. Therefore, the survey data formed the basis and focus of the analyses. As previously described, the predominant means of obtaining this information was through an open-ended questionnaire. This format allowed the collection of unbiased (by a limited list of potential answers) and diverse answers with greater accuracy and depth than would be possible with multiple-choice answers. However, the open-ended format is also less conducive to rigorous statistical analysis. Conclusions drawn from the survey should be considered with the recognition that the survey responses represent a small portion of the industry, with more responses from large trucking and bus companies and companies with more active security programs. The large number of topic areas, the many subcategories (e.g., HAZMAT, LTL, charter bus, and intercity bus), and the small survey population mean that caution should be used in drawing detailed conclusions. The more general findings are more likely to be fair representations of the industry as a whole.

After survey completion, the analysis began with a review and extraction of the messages in the survey responses, followed by response categorization and tabulation. Response categories were combined as necessary, and identity information was removed to protect the anonymity of the respondents, some of whom required anonymity as a condition of participation. The tables that resulted from this activity are numerous and, in many areas, contain heterogeneous information that is not easily categorized and analyzed. In many cases in this report, responses are abridged and presented in tabular format along with response statistics. General trends in responses, rather than specific statistics, are assessed and discussed.

Survey conclusions were supplemented with information from literature searches and interviews with government and industry representatives that were not part of the formal survey. For several key questions, multiple respondents provided

TABLE 2-1 Number of questionnaires distributed/returned by category

Company Type	Number of Companies Contacted	Number of Respondents	Percentage of Respondents
Trucking Companies	52	20	38%
Truck Driver Training Schools	5	3	60%
Tour/Charter Bus Companies	20	9	45%
Motorcoach/Bus Companies	9	7	78%
Embassies	5	2	40%
TOTAL	91	41	45%

Source: SAIC, McLean, VA, December 2002.

the same answers. For these topic areas, the survey data were heavily relied on for drawing conclusions, and related supplemental information is mentioned when it was available. In other cases, observations were made based on a combination of weak or vague survey responses and strong supplementary information. Questions that elicited a generally heterogeneous response are only minimally discussed. However, this information is made available in the report

tables to provide completeness and because the data are unique. In some cases, seemingly disparate answers to one question or answers to a combination of related questions may provide a telling glimpse into the anti-terrorist activities of these industries.

Chapters 3 and 4 provide the trucking and bus industry survey results at the disaggregate level. A summary of key findings is provided in Chapter 1.

CHAPTER 3

COMMERCIAL TRUCKING INDUSTRY

3.1 INTRODUCTION

Since the 1983 truck bombing of the U.S. Marine barracks in Lebanon, the United States has taken the threat of truck bombs used as weapons of terror seriously. However, not until the 1993 attack on the World Trade Center had the United States experienced a serious domestic terrorist attack committed through the use of a truck bomb. The most recent and serious truck bomb attack in the United States occurred in 1995 at the Murrah Federal Building in Oklahoma City, Oklahoma. The events of 9/11 re-ignited concerns that trucks can be used as instruments in terrorist attacks. Examples of security professional concerns include the following:

- Cargo tank trucks used as the sources and delivery vehicles of flammable (e.g., gasoline and jet fuel) and hazardous (e.g., poisonous, caustic, and radioactive) material against critical targets.
- Military cargo used as the source and delivery vehicle of explosive and radioactive material for dispersion, detonation, and blackmail.
- Cargo tank content used as source material for the production of weapons (e.g., diesel fuel and fertilizer) and as a medium for contaminating food and water resources.
- Trucks used as vehicles for the delivery of separately obtained weapons (e.g., explosives, radioactive materials and dirty bombs, and biological and chemical agents).

Although there have been both government and industry efforts to tighten security, the use of trucking industry assets to commit terrorism continues to be a perceived threat because of the large number of trucks carrying large quantities of hazardous and military cargo and the relatively high frequency of major security breaches (e.g., hijackings and other theft crimes) that occur in the commercial trucking industry. There is no centralized reporting of truck cargo thefts. The FBI estimates \$12 billion to \$20 billion is lost annually in truck cargo thefts, which is a fraction of a percent of

the Bureau of Census estimations of approximately \$4.9 trillion in annual U.S. truck cargo.¹ The ATA believes that even the higher FBI estimates are substantial underestimates.² This is supported by sources such as the New Jersey State Police, whose Cargo-Theft Unit estimates that only 5 to 10 percent of truck cargo theft is reported. These estimates are determined from the amount of stolen cargo found that was not reported to be stolen or lost and estimates that about \$100 of the cost of a retail computer is due to the need to recoup cargo-theft losses.³ Although a breakdown of types of cargo stolen was not found, conversations with various industry representatives suggest that theft of HAZMAT cargo is a small proportion of reported cargo thefts. Reporting of HAZMAT thefts are difficult to avoid as a result of U.S. DOT tracking required for the shipment of hazardous materials. However, theft of nonhazardous cargo may also be of concern from the standpoint of use in terrorist acts; an example of this was the truck theft last May that included a shipment of airline employee uniforms.⁴ Thus, the magnitude of cargo theft, regardless of whether the cargo is hazardous, suggests the validity of truck cargo-theft concerns.

The development of centralized cargo-theft reporting may assist in future assessments of cargo-theft risks and could be an important role for either the government or national organizations. However, centralized reporting may not reduce underreporting of thefts if the reason for underreporting is to keep insurance rates low, as has been suggested by industry experts.

Unfortunately, even if the commercial trucking industry were perfectly secure and inaccessible to terrorists, the means and the opportunity for executing a terrorist act involving trucks would not be eliminated and perhaps not even reduced. This is due to the ready access to trucks through truck rental agencies (short-term), leasing organizations (long-term), new and used truck dealerships, private sellers, importers, and theft rings—all of which may do business through the Internet. Access to many hazardous materials can be obtained legally (e.g., diesel, gasoline, fertilizers, and other base chemicals used

1. Includes both commercial trucks for hire and trucks owned by either the sender or receiver. Trucks for hire transported \$2.9 trillion worth of cargo in 1997. *1997 Commodity Flow Survey*, Bureau of Census, Table 1a.

2. Jeanne Strong, Director Claims, Safety & Loss Prevention Management Council, American Trucking Associations, Alexandria, VA.

3. "Sneaker Thefts Part of a Trend, Cargo Heists Often Go Unreported," *Kansas City Star*, March 15, 2003, p. A1.

4. "Little Danger Seen in Uniform Theft," *Kansas City Star*, May 16, 2002, p. 14G.

to create poisonous and caustic substances). The purchase of these materials can also often be arranged through the Internet.

The operational characteristics of terrorists suspected of targeting U.S.-based assets include a focus on executing severe, but infrequent, terrorist acts that have maximum terror and damage impact. Time is not a factor. A patient operational approach allows time for the implementation of activities that enhance the ability of terrorists to acquire weapons, materials to make weapons, and the means to deliver them (e.g., by trucks). These activities include the following:

- Development of businesses with the appearance of legitimacy that have been established for the acquisition of vehicles and material;
- Accumulation of equipment and material for apparently legitimate uses or in small quantities, which is unlikely to arouse suspicion; and
- Development of trust and contacts with shippers and suppliers and acquisition of permits, licenses, and other administrative necessities.

In fact, most recent terrorist acts involving trucks or automobiles used legitimate means to acquire the vehicles. Both major terrorist acts in the United States using trucks (i.e., the 1993 World Trade Center bombing in New York City and the 1995 bombing of the Murrah Federal Building in Oklahoma City) used legally acquired trucks and materials to make explosives. The only known exception to the legal acquisition of trucks for carrying out terrorist acts against the United States is the truck used in the U.S. Marine barracks bombing in Lebanon (1983). In general, obtaining trucks and material illegitimately risks prematurely exposing terrorist plans and operatives; therefore, terrorists are likely to avoid this pathway.

The combination of uncertain risks of a threat, questionable effectiveness of anti-theft security measures, tight operating margins, and competition means few trucking companies are likely to internalize potential external (noncompany) losses such as the destruction of a building, tunnel, or pipeline through terrorism. With this as a background, it is easier to understand the trucking industry's perception of national-level threats, security action taken and planned, and the direction of desired research. The remainder of this chapter examines these perceptions as well as industry attitudes, past and planned actions, and the needs and opinions of the commercial trucking survey respondents.

3.2 ANALYSES

Survey responses were received from 20 trucking companies. These respondents report the following overlapping functions:

- 12 are engaged in the transport of general freight,
- 6 are tank carriers,

- 5 transport HAZMAT,
- 3 transport food grade liquid transport,
- 2 are engaged in military freight, and
- 2 are listed as dry bulk tank operators.

Several companies were described to have multiple, unspecified product/service capabilities. Only five organizations (two general cargo, two food liquid carriers, and one HAZMAT carrier) describe themselves as single-product category trucking companies. The remaining companies listed two or more product categories (e.g., HAZMAT and general cargo). Of the 20, 10 are identified as LTL carriers, 8 are Truck Load (TL) carriers, and 2 are both. Because of the many overlaps in services provided and products shipped, it is not practical to make a distinction between groups of carriers based on this survey.

The issues addressed by the 16 survey questions are grouped into the 8 issue areas listed in the scope of this report (Section 2.3). Analysis of each issue area begins with a restatement of the issue and statement of the relevant survey question(s). Summaries of the answers are tabulated and presented in detailed summary tables that provide the reader with an opportunity to delve into the specific responses of the respondents and to formulate independent observations and analyses.

Commonly, each question received one response. However, in many cases, a respondent provided multiple answers to the same question. Because of the varied number of responses per question, the tabulated responses for each question do not equal the number of respondents to the survey (20).

3.2.1 Identification of the Key Threats to the Commercial Trucking Industry

The commercial trucking industry perception of key terrorist threats to its industry was evaluated based on survey responses to the question: *What do you perceive to be the key national security (terrorism-related security) threats to your commercial trucking operations, and why?* These responses are summarized in Table 3-1.

The respondents perceive a broad set of possible threats. Their vision of the threat is not uniform, although the main threat theme involves stolen trucks for use as instruments in carrying out terrorist acts. A variation of this scenario is either expressed or implied by most respondents. The respondents also indicate a concern that the cargo, including food, weapons, explosives, nuclear material, and so forth, could be used for a terrorist attack. Others indicate that the threats are of a somewhat less direct nature such as unknowingly transporting illicit cargo and using criminal means (e.g., vandalism) to support terrorist groups. Still other responses point to events that are less related to defining the threat and more related to defining the consequences and concerns. These include concerns for the safety of drivers and customers and concerns for loss of property. Two respondents did not perceive a terrorist threat to the commercial trucking industry.

TABLE 3-1 Perceived threats to trucking operations

Perceived Threats to Trucking Operations	Number of Respondents	Percent of Total
Stealing vehicles to be used as instruments of terrorism.	7	37%
Introduction of narcotics, weapons of mass destruction, contamination of water/foodstuffs; misdelivery of dangerous goods aimed at a disastrous result; truck entry to a consignor/consignee facility with intent to do harm.	6	32%
Hijacking of trucks and drivers.	5	26%
Theft of cargo and equipment – “economic terrorism” to support special interests at our expense.	5	26%
Theft of conventional arms, ammunition, and explosives.	4	21%
Vandalism.	4	21%
Harm to employees, drivers’ security and safety traveling over roads.	5	27%
Disruption of services, highways, and roadways.	2	11%
None.	2	11%
Not knowing the client and the cargo shipped.	2	11%
Organized crime and local gang elements.	2	11%
Theft of nuclear weapons materials.	1	5%

These perceptions of threats are expressed in general terms and are similar to events that have occurred elsewhere (e.g., stolen truck, Beirut, Lebanon, 1983) or are commonly voiced concerns of the security community (e.g., transporting and employing weapons of mass destruction and food/water contamination). Few specific hazards (e.g., explosions and chemical contamination) or targets are listed. The operations involved in executing the listed threats are the same initiating events used in the very common, and arguably unstoppable, cargo crimes committed daily on U.S. highways.

3.2.2 Identification of Risk Management Techniques Available to Assess Potential Security Threats

Risk management techniques used by the industry were assessed by survey responses to the following two questions: (1) *What process do you use to determine your risk exposure?* (2) *What risk management techniques (probabilistic risk assessment tools, vulnerability assessments, cost/benefit models, etc.) are available to you to assess potential security threats?* Responses to these questions are provided in Table 3-2 and Table 3-3.

Responses to the survey question on determination of risk exposure suggest that the industry commonly engages in assessments of threats by location (see Table 3-2). Other factors that are sometimes considered include the product, customer, crime index, run reports, and claims history/insurance statistics. These assessments are targeted more toward cargo theft than terrorist acts. However, as noted above, there is a perceived commonality and connectivity between a terrorist act and cargo theft in the mode of operation (i.e., penetrating vehicle and cargo security).

The variety of answers to the risk management question (see Table 3-3) suggests that the processes used for determining risk management are quite varied and general. Listed risk management techniques included evaluations of audits

TABLE 3-2 Process used to determine trucking operations risk exposure

Process Used to Determine Risk Exposure	Number of Respondents	Percent of Total
Threat assessments by location; implement improvements via internal/external security audits; University of Pennsylvania Crime Index for statistics to locate safe areas for truck/trailer facilities.	13	68%
Evaluate—needs vary by customer and product; Review products (dry bulk, liquid, hazardous); application information and motor vehicle record (MVR) check.	7	37%
Terminals audited for security risk exposure and accessibility.	4	21%
Operator review; facility review; customer review.	3	16%
Run reports.	2	11%
Claims history on high-value cargo; review monthly company insurance loss.	2	11%
In-transit security assessment.	1	5%
None.	1	5%
One company standard, enhanced security at high-risk locations.	1	5%

TABLE 3-3 Risk management techniques used for trucking industry threats

Available Risk Management Techniques	Number of Respondents	Percent of Total
None used.	5	26%
Security audits/facility audits; receive daily cargo theft lists.	4	21%
Company complies with military requirements.	3	16%
Use the CAP Index for local assessments; use models to evaluate costs/potential solutions and payback.	3	16%
Review American Chemical Council safety recommendations.	2	11%
Review National Tank Truck Carriers advisements (publications).	2	11%
Terminals audited for security risk exposure and accessibility.	1	5%
Due diligence on prospective customers.	1	5%
In-transit security assessment.	1	5%
Use own legal dept. to assess/evaluate safety/security needs.	1	5%
Observation and transportation groups.	1	5%
Our insurance carrier can provide help as needed.	1	5%
Review national security organizations.	1	5%
Plan ahead for stay-overs, stops, etc.	1	5%
Work with law enforcement liaison information.	1	5%

and cost/payback models in addition to due-diligence and security assessments. Some companies consider information from organizations such as the NTTC, industry publications, cargo-theft lists, insurance carriers, and law enforcement organizations in their risk management. However, the responses to the survey suggest that a significant proportion of the industry does not use or recognize the availability of more formal risk management techniques.

The many regulations and recommendations that address commercial trucking may reduce trucking company concerns about independently assessing their risk management strategies. Both risk exposure and risk management are at the root of the trucking regulations and standards that have been in place for many years to address both safety and security issues. Regulations are issued by U.S. DOT, in addition to some more rigorous state and local regulations. Specific regulations and recommendations vary by operation, cargo type, and industry group (e.g., LTL, HAZMAT, and military cargo) and are particularly extensive for HAZMAT and military cargo carriers. Hazardous materials transport regulations are issued by both the U.S. Environmental Protection Agency (EPA) and U.S. DOT for specifically designated hazardous materials, whereas the U.S. Department of Defense (DoD) regulates military cargo transport. Guidelines and recommendations are also provided by industry and private groups (e.g., the American Chemical Association), particularly for the handling and transport of hazardous bulk materials and chemicals.

Regulations and recommendations typically address technical requirements (e.g., container design and construction requirements, inspections, and maintenance); operational requirements (e.g., driving, stopping, and parking); and reporting and administrative requirements (e.g., licensing, registration, and notification). These are often based on both theoretical considerations and historical experience. However, these pre-9/11 regulations and standards only marginally address post-9/11 terrorist concerns. In response to 9/11, revisions were made to the military requirements,⁵ and changes in U.S. DOT rules for the transport of hazardous material have been proposed.⁶ From the answers provided to the risk exposure and management questions (Tables 3-2 and 3-3), it is not clear that trucking companies found it necessary to review and enhance existing risk exposure and management procedures as a result of 9/11. However, other parts of the survey (see Section 3.2.4) indicate that some reassessment and tightening of procedures did occur in addition to the requisite meeting of new regulations as they come into effect.

None of the respondents indicated that they used free risk assessment tools available through the government and the Internet.⁷ A review of some of these assessment tools indicates that they are targeted to cargo theft. The ATA is conducting a risk assessment survey that encourages the industry to engage

in a formal process to assess its exposure to terrorist acts; however, none of the survey respondents noted this activity. Standard assessment techniques that are available, but were not specified by respondents, include the following:

- **Threat Assessment**, which defines and characterizes the terrorist threat posed to the organization;
- **Risk Analysis**, which determines the likelihood of the threat occurring by location (e.g., place and activity);
- **Vulnerability Assessment**, which determines how susceptible the organization is to the threat and the points of vulnerability;
- **Effectiveness Assessment**, which tests the effectiveness of existing measures against threats and makes adjustments to fill the gaps; and
- **Cost/Benefit Analyses**, which determine what mitigation measures are prudent in terms of effectiveness, cost, and benefit.

3.2.3 Identification of Employee/Driver Hiring Procedures, Including Employee Identification/Verification Techniques, That Can Enhance Security and That Have Been Shown to Be Effective

Employee hiring and identification/verification procedures were assessed through survey answers to the following questions: *Have you revised your employee/driver hiring procedures and employee identification and verification techniques? (a) What are they now? (b) How will these be effective? (c) What other steps would help?* Responses to these questions are summarized in Table 3-4.

Trucking company hiring procedures are not standardized, but they typically include background checks (e.g., work history, criminal and reference checks, citizenship status, and financial review), and they sometimes include behavioral tests. The combination of measures used is strongly influenced by the type of service provided by the organization (e.g., HAZMAT, valuable goods shipments, and shipment of explosives). Some sectors of the industry have to meet minimum standards of due diligence in hiring. Both independent information and survey responses indicate that although some companies have significantly revised their hiring procedures, a significant proportion of the industry has not revised hiring or identification procedures since 9/11. The most common changes since 9/11 have been more thorough background checks and the use of identification cards.

With respect to ID procedures, both survey responses and independent sources suggest the use of photo IDs is increasing. Most major chemical transporters have implemented company security identification systems.⁸ FMCSA Security

5. *Defense Transportation Regulation (DTR) DoD Regulation 4500.9-R-Part II Cargo Movement*, Ch. 205; updated April 2002; www.transcom.mil/J4/j4lt/dtr.html.

6. *Federal Register*, July 16, 2002, Vol. 67, No. 136, pp. 46622–46624.

7. For example: "Chemical Facility Vulnerability Assessment Methodology," U.S. Department of Justice, June 2002.

8. "Statement of Joseph M. Clapp, Administrator, Federal Motor Carrier Safety Administration, Before the House Committee on Appropriations Subcommittee on Transportation," February 13, 2002 (testimony). www.fmcsa.dot.gov/Aboutus/testimonies/2_13_02Clapp_Testimony.htm

TABLE 3-4 Revised trucking industry employee/driver hiring and identification procedures

Revised Hiring Practices/Verification Techniques	Number of Respondents	Percent of Total
No – they are safe and appropriate.	8	42%
Yes.	7	37%
Greater emphasis on background screening.	2	11%
Identification procedure changed to photo ID badges.	2	11%
Remains focused on hiring the best candidates possible.	2	11%
What are they now?		
Stricter background checks including country of birth and visited; Application verified, background and reference check, previous employment and residences.	17	64%
Mandatory criminal record checks.	8	42%
Take copies of candidate's commercial driver's license (CDL) and Social Security Card.	5	26%
Complies with U.S. DOT compliance checks for driver's prior CDL records, past employment, drug testing, and review.	4	21%
Applicants checked for felony convictions in last 10 years.	3	16%
Company complies with military requirements	3	16%
Checked for misdemeanor convictions re: breach of trust, violence, possession/distribution of drugs in last 10 years.	2	11%
Full 10-year employment history check.	2	11%
3 years + verifiable experience with a U.S.-based carrier.	1	5%
All employees get an internal ID; change in I-9 forms.	1	5%
Do behavior testing.	1	5%
How will these be effective?		
Identify potential problem candidates and disqualify them.	2	11%
Always under review for improvements.	1	5%
ID cards, Time/Attendance, Access Control, and other verification devices.	1	5%
More vigorous verification of past employment & gaps.	1	5%
U.S. DOT went through records to identify any areas of concern (there were none).	1	5%
Re-evaluated driver pool; U.S. DOT had no problems with personnel.	1	5%
What other steps would help?		
Access to National Crime Information Center (NCIC) criminal records database.	5	26%
We need a federal database/national identification system.	5	26%
Revamp the state CDL programs.	3	16%
Online security system.	1	5%
Serious Homeland Security action against "economic terrorism" (theft).	1	5%
Tax credits/relief for cost of security implementation.	1	5%

Sensitivity Visits, implemented in response to 9/11 as a means to discuss security enhancement, target carriers transporting hazardous materials in quantities that could pose a significant threat, companies that train drivers, companies that lease trucks and drivers, and high-risk facilities (e.g., chemical plants and refineries).⁹ The Security Sensitivity Visits include discussion of the importance of tamper-proof photo IDs with telephone numbers for further verification.

Plans are also underway for development of a transportation worker ID card (TWIC) to be issued by U.S. DOT, with devel-

opment assistance by TSA. The goal of the TWIC credentialing program is to provide a uniform, nationwide standard for secure identification of workers across all transportation modes, including the trucking industry. The TWIC will likely use SmartCard technology, including biometrics. At this stage of TWIC development, technology and common credentials for all TWIC workers are being assessed.¹⁰

With respect to changes in hiring practices since 9/11, discussions with operators (some of which were not part of the formal survey) indicate that even hiring practices that have remained unchanged are taken much more seriously by the hiring organizations, regulatory agencies (e.g., DoD and U.S. DOT), investigating agencies (e.g., the FBI and private security organizations), and the applicants. Since the events of 9/11, many trucking companies have "more seriously" re-examined all employee files, including those of their senior employees, and have taken personnel actions, including dismissals. The survey respondents do not provide details on how their background checks have been enhanced. However, more rigorous background considerations may be similar to those discussed in FMCSA Security Sensitivity Visits. Security Sensitivity Visit discussion points on background checks do not include specific criteria, but do include consideration of gaps in employment, frequency of job shifts, all names used by the applicant, type of military discharge, citizenship, present and prior resident information, personal references, and criminal history.

As part of the USA PATRIOT Act of 2001, Section 1012, FMCSA, in coordination with the U.S. Department of Justice, the U.S. Department of Health and Human Services, and the American Association of Motor Vehicle Administrators, is developing a security review process for hazardous materials commercial driver's licenses (CDL). States will submit requests for background investigations to the Department of Justice before licensing an individual to haul hazardous materials. Based on the results of the background records check, U.S. DOT will make a security risk determination and notify the requesting state of the result. FMCSA expects to issue an interim final rule to implement this process in the near future.

As noted in some survey responses and by other industry sources, security would be enhanced by the development of a national, standardized, reporting and information database for trucking industry personnel. This would make the investigation process more accurate and uniform, with easier information access. Currently, processing new hires is both costly and time consuming. Access to the needed information/records is constrained by state boundaries, privacy laws, loopholes, and union and employment rules. Further, concerns have been expressed regarding the reliability of some information sources. Presumably, these issues are more relevant

9. Report on FMCSA's Security Sensitivity Visits to the House and Senate Committees on Appropriations, January 31, 2002 (an appendix of "The American Trucking Industry's Anti-terrorism Action Plan," American Trucking Associations, May 2002). This report, without security talking points, is also reproduced at: http://www.fmcsa.dot.gov/Aboutus/testimonies/SSV_Report_To_Congress.htm.

10. Further information on TWIC status can be obtained from www.tsa.gov/public/display?content=364.

for assessing criminal history and references other than driving records. The Commercial Motor Vehicle Safety Act of 1986 established minimum national standards that states must meet when licensing commercial motor vehicle (CMV) drivers. This act makes it illegal to hold more than one license and requires that states be connected to the Commercial Driver's License Information System (CDLIS) and the National Driver Register (NDR) to exchange information about CMV drivers, traffic convictions, and disqualifications. Employing motor carriers also have access to the CDLIS; however, not all states have been in compliance with the FMCSA regulations on CMV drivers and information exchange. It is not clear if the calls by survey respondents for a national driver's license system were based on difficulty accessing or using the CDLIS, inconsistent reporting within CDLIS, or other issues. FMCSA has recently improved regulations for CMV driver data exchange and can withhold all Motor Carrier Safety Assistance Program grant funds from states that are not in compliance.¹¹ FMCSA is also working with the states to eliminate practices that make systems vulnerable to fraud. As these new FMCSA regulations and activities take effect, calls for a national driver's license system may subside.

To address background information other than driving records, the ATA ATAP includes improving industry access to information databases for security and criminal background checks of commercial truck drivers and possibly for other employees in sensitive positions. The great diversity in industry hiring procedures suggests that some form of regulations, standards, or guidelines regarding hiring (beyond minimum driver's license requirements) and employee identification procedures may be beneficial. The ongoing FMCSA activities (i.e., Security Sensitivity Visits and background checks for CDLs of hazardous materials drivers) concentrate on specific segments of the industry thought to represent greater terrorism-related risks, and, thus, these activities do not provide nonhazardous carriers with guidance on hiring and identification security improvements.

3.2.4 Identification of Current Security Procedures at Commercial Truck Training Schools and Potential Threats, Including Student Identification/Verification Procedures

Information on security procedures and potential threats at training schools was gathered from interviews with training schools and from the following question presented to trucking company survey respondents: *Do you use training schools? If yes, what security procedures are employed at commercial training schools for your industry (e.g., student identification/verification procedures), and do you consider these to be effective?* Trucking company responses to this question are presented in Table 3-5.

TABLE 3-5 Trucking industry use of training schools and level of effectiveness

Use of Training Schools and Level of Effectiveness	Number of Respondents	Percent of Total
Do not use them; our drivers need minimum of 1–3 years experience.	7	37%
Not applicable/unknown.	6	32%
We provide additional in-house training.	2	11%
We won't hire someone just out of school to haul liquids.	1	5%
Candidates must go through in-house security training.	1	5%
We understand a competitor has a very good driving school.	1	5%

The responses in Table 3-5 suggest that most of the trucking companies surveyed either do not hire drivers directly from training schools, or their in-house hiring and training practices negate the relevance of what is done in training schools. The companies represented in this survey are generally larger than the average company in the trucking industry; therefore, the relevance of training school curriculum and student verification procedures may be greater for smaller trucking companies.

Several training schools were contacted to inquire about their security-related curriculum and admissions requirements. Prior to 9/11, training schools had criteria for accepting students that included eligibility requirements (e.g., active driver's license and U.S. citizenship or green card), general performance requirements (e.g., ability to read English), and some security requirements (e.g., must wear ID while on premises and must be fingerprinted). Those without a green card or work permit papers were not admitted. However, the overall focus was on safety and theft issues.

After 9/11, schools became more concerned about admittance of foreign students and improving security at their facilities. Efforts were made to obtain terrorist-related information. Regarding student acceptance practices, respondents noted that there were no significant changes in their acceptance criteria and that they have no specific practices to assess criminal or terrorist intent. Some of the reasons or impediments provided for not focusing on security, specifically terrorist-related security, were cost, area of the country does not seem to be a target, the training institution is a public organization and has limits on soliciting personal information, clients do not see a focus on security as a requirement, and students note that any focus on security is "an overkill."

The training curriculum was reported by one respondent to have been changed slightly since 9/11 to include familiarity training with theft deterrence devices. Another respondent reported the willingness to include security information in their training curriculum, but noted that clients do not call for this type of knowledge. Several schools in states that are part of the ATA HWP mentioned they didn't currently see a need

11. *Federal Register*, July 31, 2002, Vol. 67, No. 147, pp. 49741–49764.

for awareness training as part of their curriculum because free awareness training is provided by their state trucking association in conjunction with the state highway patrol.¹² In general, training schools respond to industry needs; therefore, more rigorous student admission requirements and further expansion of curricula to include security issues may not occur until the minimum industry hiring and security training requirements are more uniformly rigorous.

3.2.5 Identification of Security Procedures and How Technology Can or Is Being Used to Address Security Issues

Survey questions were designed to gather information on trucking company security procedures in three time frames: pre-9/11, current (post-9/11), and in the near future. The following question addressed pre-9/11 security procedures at trucking companies: *What national security measures were in place prior to 9/11 to address what threat? If None: Why?* Responses to this question are presented in Table 3-6.

Current (post-9/11) trucking company security procedures were addressed by the following three survey questions: (1) *What national security measures did your organization take following 9/11 regarding: employees, customers, public, cargo transport, hazardous material, other? If None: Why?* (2) *What national security measures were instituted by your shippers and consignees after 9/11, and how do these measures impact security and your operations?* (3) *Can you summarize what other members of your industry are doing?* Responses to these questions are presented in Tables 3-7, 3-8, and 3-9.

Near-future changes in trucking company security procedures were assessed by the following survey question: *What additional national (anti-terrorism) security measures are planned for this year? Over the next several years? If None: Why?* Responses to these questions are presented in Table 3-10.

The use of specific security technology in the commercial trucking industry was assessed by the following survey question: *What technologies are you employing to address security issues? If None, Why?* Responses to this question are presented in Table 3-11.

Prior to the events of 9/11, the trucking industry did not design its security program to protect against a terrorist threat. Yet, because of the strict HAZMAT shipping regulations, the even more austere military shipping regulations, and the general industry effort to minimize cargo theft, many of the pre-9/11 security measures were similar in function (if not intent) to anti-terrorist measures. Pre-9/11 security measures are summarized by survey responses presented in Table 3-6.

TABLE 3-6 Pre-9/11 trucking industry security measures

Security Measures in Place Prior to 9/11	Number of Respondents	Percent of Total
Better sealing systems for tank trailers.	6	32%
We are very careful of what we did before; 9/11 caused us to re-evaluate then follow company policy.	6	32%
Higher scrutiny for driver background checks.	5	26%
Use of padlocks and trailer seals; very tight seal control policies.	5	26%
Company complied with military requirements pertaining to physical security program.	3	16%
Enhanced terminal security; guard security.	3	16%
Increased training programs for drivers; heightened awareness during weekends and holidays.	3	16%
None.	3	16%
Enhanced automated technology, electric fences, cameras, and access controls.	2	11%
HAZMAT training and customer identification.	2	11%
No locked tankers to be left unattended.	2	11%
Various mandated U.S. DOT requirements for safe handling of HAZMAT cargos.	2	11%
Economic terrorism overlooked by federal law enforcement agencies; we've enhanced focus on security-related issues reflected in item #3; our theft deterrence actions work well with Homeland Security initiatives.	1	5%
Restriction of prior commodities and wash facilities.	1	5%
Utilization of satellite tracking communications.	1	5%
If None: Why?		
There was no issue to address other than loss prevention.	2	11%
Big emphasis on employee screening, employee/terminal security; sealed loads; use of padlocks/trailer seals.	1	5%

Trucking industry security measures prior to 9/11 included both physical measures (e.g., locking and sealing devices, terminal security, cameras, and other security devices), and policies and practices applicable to protecting against terrorist acts. The latter include stricter background checks, increased training, and more rigorous compliance with HAZMAT regulations.

The security measures implemented after 9/11 reflect changes in the perception of terrorist threats and reveal a realignment of trucking company security concerns. The large number of changes indicates that pre-9/11 measures were broadly inadequate in addressing the newly perceived risks. The most common post-9/11 changes were establishment of an anti-terrorism policy, awareness/security training, and issuance of IDs. A more complete list of the post-9/11 security changes is presented in Table 3-7. The security changes are grouped into five categories, as follows:

- **Changes in Procedures**—These types of changes were most commonly implemented by trucking companies in the post-9/11 period. These changes included such specific measures as development of anti-terrorist policies, security coordination with vendors, re-evaluation

12. The ATA HWP is funded by FMCSA as a national safety outreach initiative that trains drivers to report incidents (e.g., accidents, stranded motorists, poor signage, and/or suspicious activities at bridges, tunnels) to an operations center that forwards reports to the appropriate authorities. ATA has proposed that this program could function as the "Highway Information Sharing and Analysis Center" (H-ISAC) and could provide two-way communication with U.S. DOT's Transportation Information Operations Center (TIOC).

TABLE 3-7 Post-9/11 trucking industry security measures

Security Measures Implemented After 9/11	Number of Respondents	Percent of Total
Established terrorism policy; increased security awareness/training programs for employees.	10	53%
Issued employee ID/photo ID badges.	10	53%
Employee awareness and training bulletins/communications.	7	37%
Re-evaluated current systems.	6	32%
Greater scrutiny of potential and current employees (e.g. non-U.S. citizens were submitted to FBI for review).	5	26%
Increased internal physical security measures.	5	26%
Additional use of padlocks and cable seals.	4	21%
Worked with vendors/customers regarding different criteria relating to security.	4	21%
Cargo security policies for vendors/customers.	3	16%
Improved hazardous materials preparedness.	3	16%
Stricter routing of hazardous materials.	3	16%
Added security department—have policies and procedures.	2	11%
Hazardous materials customer and operator review.	2	11%
Implemented food chain security.	2	11%
Increased cargo inspections and response to suspicious packaging.	2	11%
Security load code; trailer hook-up for roadmen.	2	11%
Work with FBI, state, local authorities with policies and procedures in place.	2	11%
Added discharge clause for non-compliant drivers.	1	5%
Additional identification required at our terminals.	1	5%
Customs-Trade Partnership Against Terrorism (C-TPAT)	1	5%
Delays to be reported to and by customers.	1	5%
Deliveries in well-lit areas only.	1	5%
Driver authority to refuse questionable shipments.	1	5%
Increased use of guards.	1	5%
Installed GPS locators in all new trucks to track in case of theft.	1	5%
None.	1	5%
Review by U.S. DOT inspectors.	1	5%
Security cameras used for trailer compounds 24/7.	1	5%
Significantly cut back on loaded trailers left at facilities.	1	5%
Some customers requested that drivers wear ID badges.	1	5%
With HAZMAT loads, drivers not to stop—timed deliveries.	1	5%
Worked with American Chemical Council to find ways to reduce risk.	1	5%

of cargo-related security, improved preparedness, and so forth. In addition to the survey responses, ATA has stated that some carriers are evaluating specific routes to be used and advising drivers transporting certain hazardous materials to avoid highly populated areas. Other procedural changes include driver verification of seal integrity at each stop, immediate notification of central dispatch if seal integrity is compromised, and reconciling the serial number on loaded trailers with the number on the shipper’s documents prior to departure.

- **Employment-Related Practices**—These include greater scrutiny/background checks of existing and new employees, issuance of ID badges, and stricter discharge clauses. In addition to the survey responses, ATA has stated that some carriers now designate specific drivers for specific types of loads (e.g., hazardous materials).
- **Employee Training**—Some respondents have provided new training to improve security awareness and preparedness. This may include instructing drivers not to stop or render assistance except in the case of clear emer-

TABLE 3-8 Post 9/11 security measures instituted by shippers and consignees

Security Measures Instituted by Shippers/Consignees After 9/11	Number of Respondents	Percent of Total
Chemical industry requirement for “responsible care” to protect product, employees, and public through proper handling/transportation of goods.	3	16%
Tighter seal controls on trailers transporting food and other products.	2	11%
Clients ask for certification and proof/criminal investigations for drivers and other employees before hiring firm for some assignments.	1	5%
C-TPAT is the main focus of many shippers; access and freight accountability is enhanced.	1	5%
Done very little; received copy of their security procedures.	1	5%
Enhances our operations as our employees follow the same procedure with each customer.	1	5%
Positive ID of drivers.	1	5%
Specific sealing observations.	1	5%
Tighter qualifications for drivers transporting HAZMAT.	1	5%

gencies; alerting drivers to possible ploys used in vehicle hijackings; and advising drivers to notify their supervisors of suspicious shipments, or if necessary, to contact law enforcement to request inspection of shipments.

- **Physical Security**—Measures were implemented to improve facility security (e.g., cameras and guards), and vehicle and cargo security (e.g., locks and seals).
- **Addition of Technology**—Only three survey respondents specified the addition of technology-based measures in response to 9/11. These measures were cameras, locks and seals, and global positioning satellite (GPS) locators. However, the addition of new technology is a commonly mentioned planned measure, as discussed later.

As listed by both ATA and FBI sources, procedural security improvements may include actions such as not listing products

TABLE 3-9 Summary of what other trucking industry members are doing

What Other Trucking Industry Members Are Doing	Number of Respondents	Percent of Total
Presumably the same—proactive approach.	7	37%
They shouldn’t tell us what they do so it isn’t compromised.	3	16%
Each group wants its own ID source; recommend biometrical card for portion of the commercial driver’s license (CDL).	2	11%
Secure trailer facilities—fences, gates, and 24/7 security guards.	2	11%
Securing trailer compounds with 24/7 cameras.	2	11%
Trucking companies willing to provide more security/technology—are customers willing to pay?	2	11%
U.S. DOT also provides alerts to us for security issues/warnings.	1	5%
Retraining staff and drivers on cargo/terminal security.	1	5%
GPS tracking of equipment.	1	5%
National Tank Truck Carriers (NTTC) gives us notices re: security issues/warnings.	1	5%
Others use ID badges because customers want it; cards not fail-safe.	1	5%
Communication with over-the-road (OTR) drivers.	1	5%
Waiting for federal regulations.	1	5%

TABLE 3-10 Planned trucking security measures

Additional Security Measures Planned	Number of Respondents	Percent of Total
Evaluate facility to add fences, gates, and security systems.	7	37%
Closed circuit TV with remote view-in capability and digital recording/storage.	6	32%
Considering controlled access, electric/electronic gates, key code, cameras, etc.	6	32%
Additional in-house driver training.	4	21%
All trailers to have operator ID system locks and seals.	2	11%
Hiring additional contracted security.	2	11%
Improved driver communication.	2	11%
Increased awareness through meetings.	2	11%
None.	2	11%
Regular driver call in.	2	11%
Still under review.	2	11%
Adding second trailer door-locking system.	1	5%
Employee ID.	1	5%
GPS equipment tracking.	1	5%
Improve tank-opening security—electronic alarms and locks.	1	5%
Need to evaluate since new measures also include cost factor.	1	5%
Testing devices to secure vehicle in event of terrorist attack.	1	5%
We are awaiting Homeland Security office guidance.	1	5%
If None, Why?		
Waiting on standardization from customers and government.	1	5%

TABLE 3-11 Trucking industry security technologies

Technologies Employed to Address Security Issues	Number of Respondents	Percent of Total
Information Technology (IT) systems.	5	26%
Closed circuit TV with digital recording/storage and remote view-in for selected locations.	4	21%
Currently have locks and padlocks at terminals when not in use.	3	16%
Electronic ID card.	3	16%
Electronic/electric access gates/perimeter security fences.	3	16%
Increased awareness, personnel training.	3	16%
Considering GPS, code entry requirement.	2	11%
Electric fences with guard dogs.	2	11%
Guard services and alarm systems.	2	11%
Investigating needs at terminals re: security issues.	2	11%
Liquid fleet use wireless communication and tracking products for communications with drivers.	2	11%
Locks and seals; need to upgrade quality of tamper-evident seals.	2	11%
Wireless communications and alarm systems.	2	11%
Cell phone/3-way radio.	1	5%
Concerned overall with the ways technologies are being employed.	1	5%
Covert CCTV and detection devices; burglar/fire alarms.	1	5%
Due diligence on prospective customers.	1	5%
Enhanced lighting.	1	5%
Newsletters.	1	5%
Trailer security protocol.	1	5%
Using GPS; enhanced physical security.	1	5%
Vehicle/cargo tracking devices.	1	5%
We pick up from the piers; use x-ray technology.	1	5%

by name on bills of lading or invoices given to the driver. Drivers often do not need to know what is being hauled and do not need access to loading areas where they can see the product. Shipping personnel can be instructed to not discuss products or operations with drivers, and trucking companies can be required to provide a driver's name and other identifying information prior to his or her arrival. Before release of pick-ups, tractor and trailer licenses should be recorded and checked against the company that is supposed to pick up the load, and a record of the driver should include both text (e.g., date of birth and other driver's license information) and nontext identifying information (such as photo or thumbprint of the driver).

As discussed in Section 3.2.2, there are U.S. DOT, U.S. EPA, and DoD regulations and industry recommendations that address trucking industry security measures. These are often based on safety concerns, but they can also mitigate terrorist threats. As a result of 9/11, DoD has released new regulations,¹³ and U.S. DOT has published a proposal for new regulations.¹⁴ The former represents post-9/11 changes that companies transporting military cargo have had to make. The proposed new U.S. DOT regulations suggest changes that trucking companies may need to make in the near future.

None of the respondents mentioned being part of the HWP, which is one of the foundations of the ATA's ATAP.¹⁵ In the spring of 2002, this program was operating in only 6 states, but by the spring of 2003, the program had expanded to a total

13. *Defense Transportation Regulation (DTR) DoD Regulation 4500.9-R-Part II Cargo Movement*, Ch. 205; updated April 2002; www.transcom.mil/J4/j4lt/dtr.html.

14. *Federal Register*, July 16, 2002, Vol. 67, No. 136, pp. 46622–46624.

15. "The American Trucking Industry's Anti-terrorism Action Plan," American Trucking Associations, Alexandria, VA, May 2002.

of 15 states, with more states expected in the near future. The ATAP was designed to coordinate industry and government efforts, and it includes specific steps that are to be taken under each of DHS's color-coded terrorist threat conditions.

With regard to the security requirements placed on truck operators by their clients as a result of 9/11, respondents report additional requirements placed on them by the chemical industry in the form of "responsible care" and tighter seal controls on food and other product shipments (Table 3-8). The chemical industry "responsible care" guidance was developed by the American Chemistry Council in conjunction with the Chlorine Institute and the National Association of Chemical Distributors.¹⁶ These guidelines provide few specific recommendations but state that member companies must identify and assess security risks, implement additional security measures (e.g., the installation of physical barriers and additional screening of transportation providers), improve cyber as well as physical security, document security procedures, provide awareness training, and so forth. Other requirements placed by clients include the pre-approval of drivers, tighter qualification of drivers transporting HAZMAT, and presentation of a valid driver's license or identification card.

Most of the respondents assume that other companies are generally taking the same measures as they are and, therefore, provide little added insight into security-related activities of other industry members. The specific measures listed are generally the same as those listed under pre- and post-9/11 security measures (Tables 3-5 and 3-6), including the addition of GPS, communications systems, physical security measures, and training. An additional post-9/11 security measure reported to be implemented by other trucking companies was the use of biometric cards. Two respondents noted that there are many security measures available and that the trucking industry is willing to implement them if the customers are willing to pay for them.

Future plans for additional security measures reflect the industry's general belief that more needs to be done to ensure trucking safety. Unlike measures taken to date, planned security measures take greater advantage of available technology solutions. The planned changes presented in Table 3-10 are grouped into the following three categories:

- **Technology-based Measures**—These plans dominate the responses and, as such, differ from measures already implemented. The specific technology-based measures listed include closed-circuit/remote monitoring, electric and electronic gates, GPS and other tracking systems, added communications, alarms, and so forth.
 - **Physical Security**—These plans include measures to improve facility security, vehicle and cargo security (locks and seals), the addition of guards, and so forth.
 - **Communication**—Better communication is planned through the addition of meetings to improve awareness and more frequent on-road communications.
- Some trucking companies have no plans for new security measures, whereas others are still evaluating their future needs or are awaiting standardization of requirements or specific guidance from relevant governmental agencies. Petroleum companies, for example, are evaluating national electronic access cards for entry to loading facilities.¹⁷
- A broad range of security-related technology options is available to the trucking industry. Essentially, technology options and availability do not appear to limit trucking security. Technology options include the ability to track vehicle location and performance (e.g., speed and fuel use), monitor vehicle and trailer access, and maintain communication with drivers. These technologies are often based on satellites or computers and can be used openly or covertly. They can be used to monitor operations in real time or to record operations to be monitored at another time. These technologies can also be continuously used, scheduled for use, or used on an as-needed basis. There are technology options to implement virtually any form of monitoring, communication, tracking, and recording, in any combination and format needed. Many of these technologies are noted in either the survey responses on currently employed security technology (Table 3-11) or the responses on planned security measures (Table 3-10). A list of trucking industry technologies follows in order of reported frequency of use (most frequent to least frequent) by survey respondents:
- **Monitoring Technologies**—Closed circuit television (CCTV), digital recording, remote viewing, covert CCTV, and detection devices (e.g., motion, fire, and burglar sensors).
 - **Access Control**—electronic access, gates, electric fences, ID cards, coded lock/entry, truck and trailer locks, seals and tamper sensors, remote engine shut-off, and identification or password for engine start-up. Some of these function independently, in redundant modes, or in tandem with other manual or technology-based options (e.g., electronic fence with Cable TV [CATV] and with guard dogs).
 - **Tracking Systems**—Systems based on information technology (IT), satellites, or wireless GPS.
 - **Communication**—Two-way radios, panic buttons, and cell phones.

16. "Responsible Care Security Code of Management Practices," American Chemistry Council in conjunction with the Chlorine Institute and National Association of Chemical Distributors. www.americanchemistry.com.

17. "Statement of Joseph M. Clapp, Administrator, Federal Motor Carrier Safety Administration, Before the House Committee on Appropriations Subcommittee on Transportation," February 13, 2002 (testimony). www.fmcsa.dot.gov/Aboutus/testimonies/2_13_02Clapp_Testimony.htm.

All trucking survey respondents listed some form of current access control, ranging from padlocks and guard dogs to electronic access gates and alarms. Roughly a third of the respondents currently employ some form of tracking technology, and nearly a quarter listed monitoring technologies. The surveyed companies are generally larger in size than the average trucking company; therefore, the more sophisticated and costly technologies, such as tracking and monitoring, may be less common in the industry as a whole than indicated by this survey.

Trailer seals are one of the few common technologies listed above for which there are some specific recommendations. The primary purpose of seals is to ensure the integrity of the load and prove that it was not tampered with once the seal was placed. Thicker bolt seals are more difficult to cut and thus provide greater security; however, all seals may be circumvented by actions such as removing doors or breaking the hasp and slipping the seal out. Indeed, there is virtually no security technology that cannot be circumvented. An example of this was seen when the 9/11 terrorists rapidly disabled the aircraft transponders that provide location and altitude, leaving radar as the only means for tracking aircraft location and no means for discerning aircraft altitude. It would not be possible to track a truck or trailer location after disabling a GPS or transponder-type system (radar cannot be used). Thus, trucking industry organizations, such as the ATA, maintain that performance standards can provide more important anti-terrorism measures than specific technologies.¹⁸

However, there is acceptance of a role for security technology. The ATA ATAP includes evaluations of technologies that could possibly assist the trucking industry to effectively improve the security of trucks, terminals, and other operations. Given the wide variety of technologies available and multiple vendors for similar technology, evaluations of technological options are important for trucking companies to confidently invest in security technology. However, the lack of the survey responses mentioning relevant ATA programs and suggestions for security improvements (e.g., periodic security briefings on ATA websites such as www.truckline.com) suggests that widely conveying the findings of such evaluations may be the more difficult task.

FMCSA, in cooperation with FHWA and the U.S. DOT Joint Program Office for Intelligent Transportation Systems, has begun to examine the potential effectiveness of several technologies as part of an Intelligent Transportation System (ITS). The tests involve 100 HAZMAT trucks over a 2-year period. The purpose is to assess the effectiveness of different technologies and procedures and determine costs and benefits with respect to the safety and security of hazardous materials. Tested technologies include biometric driver verification to

allow law enforcement, shippers, and consignees to make positive identifications of truck drivers; prevention of unauthorized drivers from operating a vehicle; off-route vehicle alerts; stolen vehicle alerts; cargo tampering alerts; and remote engine shut-off.¹⁹

Although security technologies listed in this report are associated with terrorist-related threats, few, if any, of these technologies were implemented solely to mitigate terrorism. All of the technologies mentioned are dual-use technologies and were adopted either for their cargo theft deterrence value or in response to a specific client request. Available technologies that may identify national security threats such as radiation detection devices, explosion detection devices, nonintrusive X-ray and gamma ray inspection systems, and other cargo-recording devices were not listed by the respondents.

3.2.6 Identification of Issues or Problems Associated with the Implementation and/or Use of Specific Security Measures

Industry problems or issues associated with implementation of security measures were assessed based on responses to the question: *What problems or issues did you experience with the implementation and/or use of specific national security measures or technologies?* Responses to this question are presented in Table 3-12.

The most common comment relates to the overall cost of adding, maintaining, and using new technologies. Purchase costs or leasing fees, service, training, facility, and other incidental items are some of the key cost components noted. A large number of respondents report no critical problems or issues or list access and infrastructure issues (e.g., cannot fuel or have no access to facilities). Employee concerns of privacy invasion are also noted. Other difficulties in technology implementation include the constant need to evaluate the large number and changing nature of technology options, the lack of standardization, and a lack of consistency in customer needs.

3.2.7 A Summary of Security Research and Development Related to the Commercial Trucking Industry and What Other Research Would Be Beneficial

Three survey questions addressed the industry perception of what research is being done that may be relevant to the commercial trucking and bus industries. These questions were: (1) *What research is being done that would assist you in meeting your national security needs?* (2) *What assistance, research, development, training, technology, and other activities or services would help you in achieving the desired and*

18. "The American Trucking Industry's Anti-terrorism Action Plan," American Trucking Associations, Alexandria, VA, May 2002.

19. "The American Trucking Industry's Anti-terrorism Action Plan," American Trucking Associations, Alexandria, VA, May 2002.

TABLE 3-12 Trucking industry problems with implementing technologies

Problems/Issues with Implementing Technologies	Number of Respondents	Percent of Total
Overall cost.	13	69%
None.	7	37%
Constantly evaluating technologies (e.g., remote engine shut down).	2	11%
Employee mistrust.	4	22%
Varying requirements by the customer base.	2	11%
Human element—people forgetting to do tasks (swapping out videotapes from VCRs).	1	5%
Lack of consistency in the chemical shipping industry.	1	5%
With military shipments cannot fuel up at terminals, must use truck stops.	1	5%
Military holding facilities lack adequate facilities for drivers, who must use truck stops.	1	5%
Mostly technological glitches with new systems.	1	5%
Need to standardize cargo seals to meet customer requirements.	1	5%

necessary level of security? Who should provide these needs? (3) What organizations do you and your industry rely on for the development of national (anti-terrorism) security measures (procedures, technology, training, etc.)? Tables 3-13, 3-14, and 3-15 present responses to these questions.

The information provided by the survey respondents suggests that trucking companies are not well versed in ongoing research efforts. The responses provided in Table 3-13 do not identify specific “research in progress” that would assist the industry in meeting its security needs. The items listed (e.g., GPS-tracking equipment, biometric cards, and communications) are currently available as commercial products. Survey respondents did not provide specific areas for improvement of these products. Recommendations for efforts to reduce the costs of technological options were not voiced;

TABLE 3-13 Trucking industry security research

Research in Progress to Assist in Meeting Security Needs	Number of Respondents	Percent of Total
GPS tracking of equipment.	3	16%
They shouldn't tell to avoid compromising security.	3	16%
Each group wants its own ID source; recommend biometrical card for portion of the commercial driver's license (CDL).	2	11%
National Tank Truck Carriers (NTTC) gives us notices re: security issues/warnings.	2	11%
Others use ID badges because customers want it; cards not failsafe.	2	11%
Presumably the same—proactive approach.	2	11%
Secure trailer facilities, fences, gates, 24-7 security guards.	2	11%
Trucking companies willing to provide more security/technology—are customers willing to pay?	2	11%
U.S. DOT provides alerts to us for security issues/warnings.	1	5%
Communication with over-the-road (OTR) drivers.	1	5%
Retraining staff and drivers on cargo/terminal security.	1	5%
Securing trailer compounds with 24/7 cameras.	1	5%
Waiting for federal regulations.	1	5%

TABLE 3-14 Desired trucking industry security research

Research Desired to Enhance Security Measures	Number of Respondents	Percent of Total
Need a federal operator ID program so employers can exchange information without fear of litigation.	5	26%
More technology for product security—alarms, self-locking cargo compartments; believe the private sector will lead the way.	2	11%
Need uniform instructions and have everyone “on the same page.”	2	11%
“Wait and see” new government regulations; future terrorist actions may dictate.	1	5%
Better engineering of trailers with less susceptibility to contamination.	1	5%
Learn from ATA.	1	5%
Need awareness training; teach trucking companies/ drivers to be observant.	2	11%
Need standardization of sealing practices.	1	5%
Need to be aware of economic terrorism.	1	5%
Secure “loose borders.”	1	5%

however, as seen in Table 3-12, cost is identified as a problem for implementation of technology options.

The trucking industry survey respondents’ desires for research, development, training, technology, and other activities or services to help achieve the desired level of security are listed below, along with a brief description of programs currently underway to address these issues (Table 3-14):

- Development of a uniform federal operator (driver) identification system to enable national-level tracking of

TABLE 3-15 Organizations used for developing trucking industry security measures

Organizations Relied Upon for Developing National Security Measures	Number of Respondents	Percent of Total
American Trucking Associations.	10	53%
National Tank Truck Carriers Association (NTTC).	5	27%
American Chemistry Council.	4	21%
National Cargo Security Council.	3	16%
State trucking associations.	3	16%
Work with federal, state, and province enforcement agencies.	3	16%
Chambers of Commerce.	2	11%
FMCSA.	2	11%
Transportation Research Board (TRB).	2	11%
American Society for Industrial Security.	1	5%
Business Roundtable.	1	5%
Cargo Criminal Apprehension Team (CATS).	1	5%
Commercial Vehicle Safety Alliance.	1	5%
CTAP.	1	5%
ENO Foundation.	1	5%
FAST.	1	5%
Federal Bureau of Investigation.	1	5%
Intermodal Association of North America (IANA).	1	5%
Internal experienced security personnel.	1	5%
Security companies	1	5%
Manufacturers.	1	5%
Midwest Cargo Security Council.	1	5%
Own—large law-enforcement, legal & safety departments.	1	5%
Transportation groups.	1	5%
Transportation Loss Prevention and Security Association.	1	5%
U.S. Customs.	1	5%
Web-based equipment tracking companies.	1	5%

drivers. The U.S. DOT/TSA TWIC program, described in Section 3.2.3, is a federal transportation worker identification system. The details of TWIC are currently under development, but the goal of this program is to provide a uniform driver ID system.

- Development/improvement of specific access control technologies, including alarms, self-locking cargo compartments, improved trailers, and standard sealing practices. As listed in Section 3.2.5, control technologies including alarms, self-locking cargo compartments, and seals are commercially available; however, these technologies can be circumvented. The competitive nature of the security products industry encourages continued product improvements.
- Awareness training. Awareness training is provided as part of the ATA HWP, and the availability of this training is likely to increase as the HWP expands.
- Improved border security. As discussed in Section 3.2.8, efforts currently are underway to improve border security and efficiency.

Table 3-15 contains the responses identifying the organizations that trucking companies rely on for information on anti-terrorist measures. Industry associations are frequently listed (e.g., ATA, NTTC, American Chemistry Council, National Cargo Security Council, and individual state trucking associations). The listed federal agencies include FMCSA, the FBI, and the U.S. Customs Service. None of the survey respondents listed for-profit companies that offer security and anti-terrorism manuals, seminars, videos, and so forth.

3.2.8 Information on What Has Been Done in Other Countries to Enhance the Security of Commercial Truck Safety, Particularly in Countries That Have Had to Deal with Significant Terrorist Activity

Industry knowledge of security procedures in other countries was assessed from survey responses to the question: *Can you comment on what has been done in other countries to enhance the security of commercial truck safety?* Responses to this question are presented in Table 3-16.

The responses in Table 3-16 do not include specific anti-terrorist security measures practiced in other countries. They do report some awareness of general security shifts in Canada and some technical developments in Europe and elsewhere. These technical developments include making containers more secure, off-route GPS, accident warning devices, bumper/brake, and remote vehicle shut-off systems.

Additional information on trucking security measures employed in other countries was obtained from interviews with selected embassy personnel. Israel, India, and Russia were of

TABLE 3-16 Trucking industry security measures used in other countries

Awareness of Other Countries' Enhanced Security Measures	Number of Respondents	Percent of Total
Unknown.	9	47%
We transport into Canada regularly; we're aware of changes at the border crossings; tightened down security.	3	16%
Aware of European high-tech initiatives on securing containers; Europe is advanced, and we need to catch up.	2	11%
Aware of Israel's lack of success with trucks, buses, ambulances—any mode that carries people into areas of interest or population.	1	5%
Aware of other countries not nailing down physical assets and not being able to make sure that the wrong people don't get a hold of it.	1	5%
Emphasis is being placed on safe transportation and security of overseas containers.	1	5%
Have very limited knowledge exposure to Mexican border crossings.	1	5%
Off-route GPS, satellite/cellular notifications.	1	5%
Radar, sonar, infrared warning devices for accident prevention (fog).	1	5%
Rear bumper brake activation for law enforcement.	1	5%
Remote vehicle shut-off systems.	1	5%
Some state the criterion is "overkill" in the industry, especially when forced on the industry by insurance carriers.	1	5%
These issues are just now being addressed 1 year after 9/11.	1	5%
Tracking/securing devices through remote operations.	1	5%

particular interest because of the relatively high incident rate of terrorist acts in these countries. Mexico and Canada were of interest because of their shared borders with the United States. The Israeli and Russian embassies would not comment on their truck-related terrorism concerns or their anti-terrorism measures.

The Indian embassy provided some comments on how the Indian government addresses terrorist use of trucks.²⁰ Recent terrorist acts using trucks in India have included the detonation of explosive devices planted on trucks and setting coal trucks ablaze. Terrorist threats using trucks are often directed at passengers as terror tactics. The use of trucks to transport terrorist weapons and personnel is also an issue. In addition, so-called "taxes" are levied on trucks using routes in terrorist-dominated areas. Federal legislation and security resources are implemented and used by local and state governments, who provide the front-line address of terrorist risks. Cost-benefit analyses determine the technology and security measures along different routes. The events of 9/11 had little effect on anti-terrorism strategies in India, largely because they have been dealing with repeated terrorist attacks throughout the last decade.

With respect to countries bordering the United States, alerts from U.S. Customs issued immediately after 9/11 resulted in

20. Mr. Jayanto Choudhury, Counsellor, Embassy of India, Washington, D.C.

extreme delays in border crossings. On the Canadian border, U.S. Customs has minimized these delays by implementation of technological solutions such as the International Trade Data System (ITDS) and the Automated Commercial Environment (ACE). These systems allow carriers to pre-file cargo, conveyance, and crew data for risk assessment by federal agencies prior to arrival at border crossings. Additionally, the U.S. and Canadian governments signed a 30-point Smart Border Declaration in December 2001 that lists key areas for cooperation in border policy. Harmonization of customs procedures and

more secure and efficient border crossings are the subject of ongoing discussions.

Customs administration between Mexico and the United States has been fully automated since 1991. After 9/11, the United States and Mexico signed the U.S.–Mexico Border Partnership Action Plan to promote cooperation and the use of technology to provide secure and efficient border crossings. This includes the continued development of a joint intra-transit shipment tracking system and implementation of the Container Security Initiative.

CHAPTER 4

COMMERCIAL BUS INDUSTRY

4.1 INTRODUCTION

During the past 5 to 10 years, it has become widely accepted that buses in the United States are potential targets and instruments for terrorist acts. For a terrorist, the U.S. commercial bus system is a low-risk, high-visibility, high-impact target, which provides an opportunity to kill many people, destroy property, and cause extensive economic and psychological damage. In the aftermath of an attack, the loss of trust in the security of the bus system would alone account for major transportation and economic disruptions over a wide geographic area, with long-lasting effects. Although this threat has been known for many years, the U.S. commercial bus system has not experienced a terrorist act and, as a result, did not adopt any significant measures to mitigate such attacks prior to 9/11.

As targets and potential instruments of terrorist attack, there is little distinction made between urban transit buses and commercial buses; they both carry passengers from point to point in similar vehicles. A terrorist act on either would create similar consequences. Nonetheless, there are some notable differences between transit buses and commercial buses. These differences include type of ownership (i.e., government versus private entities), amount of luggage, number of stops, and so forth. Differences between transit buses and commercial buses affect how security measures are implemented, who implements them, and who pays for them. For these reasons, this synthesis project only addresses anti-terrorist security issues associated with the commercial bus industry.

In this study, the commercial bus industry is defined as including bus service organizations that provide public or private transportation between cities. There are hundreds of commercial bus companies within the United States, which together move 200 million more people per year than the United States airline industry.²¹ There are approximately 40,000 commercial buses operating in the United States, and 95 percent of commercial bus companies have fewer than 25 buses, suggesting an industry composed of many relatively small companies. For the purpose of this synthesis study, the commercial bus industry is divided into two categories: motorcoach operators and tour/charter operators. Motorcoach organizations provide scheduled service between

cities and are often composed of a large conglomerate of multiple operators. Tour/charter bus organizations are privately operated companies that provide charters for private parties, tours, and sightseeing, with or without affiliations with other tour/charter companies. Much of the tour/charter industry has uniquely booked and dynamic schedules.

Comparison of the commercial trucking and bus industries' anti-terrorism activities, based on responses to this survey and on statements from the ATA and the ABA, suggests the commercial bus industry has not addressed security and related terrorism as much as the commercial trucking industry. This is largely due to several pre-9/11 factors that promoted trucking industry security measures that also mitigate terrorist threats. These pre-9/11 factors included government regulation of hazardous materials transport, significant industry losses because of cargo theft, and the availability of federal funds for ATA's initiation of the HWP in 1998. An expanded HWP is the centerpiece of the ATA ATAP that was released in 2002, and it includes driver awareness training in the more than 20 states that are currently part of the program. In contrast, the ABA ATAP, released in 2002, states that the organization is completing the development of training/awareness materials, but is lacking government funds to begin an industry-wide training effort. Further, the ABA plan introduces its exploration of the possibility of joining the ATA HWP and calls for the government enactment of a "Good Samaritan" law to insulate persons providing information about possible terrorist threats from criminal or civil liability (because of allegations of slander and defamation of character) when they act in good faith. Although the ATA has called for similar legislation, this issue may be a greater concern for bus drivers because they generally have contact with many more people than truck drivers.

In contrast to the controlled access and shipping manifests used in the commercial trucking industry, the commercial bus industry is dependent on quick public access to and egress from buses and the ability to carry luggage without shipping lists. Further, the expense and time associated with methods of luggage examination (e.g., metal and explosive detection and body and bag searches) often preclude this as a practical option. Even when strict control of access and egress is possible, buses travel on public roads where they are exposed to

21. "Motorcoach Industry Facts," American Bus Association. www.buses.org/industry.

external attacks (e.g., car bombs and hijackings). From a cost and operational perspective, it is impossible to make the bus system beyond the reach of a determined and well-executed terrorist scheme. However, there are many simple, low-cost and no-cost measures, as well as more costly but still affordable security strategies, that can make the commercial bus system a less vulnerable and less attractive target and one that is better able to mitigate the effects of a terrorist event.

Determination of security measures that optimally balance costs and security benefits has been an industry and government goal since the events of 9/11. Many proactive bus operators have decided to find their cost/benefit equilibrium and implement their own set of security measures. Others are waiting for the federal government to pass regulations and present security guidelines. This synthesis study identifies the commercial bus industry's perceptions of the need for security measures and presents information on measures implemented prior to and in the year following 9/11. All survey responses have been gathered prior to dispersal of any federal bus security funds.

In August 2002, \$15 million in federal grants was appropriated to the TSA for commercial bus security. The funds are expected to be dispersed in the form of security grants to operators to assist in the development of security programs and training. As of early April 2003, TSA regulations for dispersal of these funds have not been finalized. Legislation for additional bus security funds was unanimously passed in the U.S. House of Representatives in November 2002 as part of H.R. 3429, "The Max Cleland Over-the-Road Bus Security and Safety Act." As of this writing, this bill has been placed on the Senate legislative calendar (S. 1739) but has not yet reached the floor. If passed, this legislation will authorize \$99 million to fund a bus security grant program to be established by U.S. DOT through FMCSA (the regulatory agency responsible for over-the-road bus safety) and will call for an assessment of over-the-road bus security issues to be delivered to the Congress in 6 months. It is expected that the report would assist in further examination of bus security needs for consideration in the Transportation Equity Act for the 21st Century (TEA-21) reauthorization process. Thus, currently, there is no means of distribution for federal security funding for private bus operators. When available, the grants will be used for improving security through various means, including the following:

- Constructing or modifying garages, facilities, or buses to ensure safety;
- Protecting or isolating the bus driver;
- Upgrading, purchasing, or installing ticketing systems;
- Training employees in recognizing terrorist threats and evacuation procedures;
- Establishing and implementing passenger screening procedures and baggage inspection;
- Expanding the hiring of security officers;
- Installing cameras and video surveillance equipment;
- Creating employee identification and background check programs; and
- Establishing emergency communications systems linked to police and emergency personnel.

4.2 ANALYSES

Survey responses were received from seven motorcoach operators and nine tour/charter bus operators. These companies were generally larger than average companies. The issues addressed by the 16 survey questions are grouped into the 8 issue areas listed in the scope of this report (Section 2.3). Analysis of each issue area begins with a restatement of the issue and a statement on the relevant survey question(s). The tabulated answers are presented in detailed summary tables that provide the reader with an opportunity to delve into the specific responses of the respondents and to formulate independent observations and analyses.

Commonly, each question received one response. However, in many cases a respondent provided multiple answers to the same question. Because of the varied number of responses per question, the tabulated responses for each question do not equal the number of respondents to the survey.

4.2.1 Identification of the Key Threats to the Commercial Bus Industry

The commercial bus industry perception of key terrorist threats to its industry was evaluated based on survey responses to the question: *What do you perceive to be the key national security (terrorism-related security) threats to your bus operations, and why?* These responses are summarized in Tables 4-1a and 4-1b.

TABLE 4-1a Perceived threats to motorcoach operations

Perceived Threats to Bus Operations	Number of Respondents	Percent of Total
Don't have resources for security at all locations.	2	29%
Possibility of an explosive placed into luggage or other hidden location.	4	57%
Possibility of an individual on board with an explosive device strapped on.	3	43%
Disruption of business—threat of operations impact.	4	57%
Loss of life or injury to persons.	1	14%
Vehicles used as weapons or to transport weapons or groups of people (terrorists).	1	14%

TABLE 4-1b Perceived threats to tour/charter operations

Perceived Threats to Bus Operations	Number of Respondents	Percent of Total
None, do not perceive any threats.	8	88%
Driver knows riders—no threats perceived.	2	22%
Possibility of an explosive placed on one of our buses.	4	44%
Possibility of an individual on board with an explosive device strapped on.	2	22%

Based on the review of the responses summarized in Table 4-1a (motorcoach operators) and in Table 4-1b (tour/charter operators), the main perception of threat to the commercial bus industry is that an explosive device would be detonated on a bus. Two specific paths for the delivery of the explosives are noted—the device would be strapped on a person (suicide bomber), or the device would be placed on the bus (e.g., in the luggage). In addition, the transportation of terrorists is listed as a concern. Additional potential threats that were not listed by the survey respondents include the use of explosives and guns at bus stops, attacks from outside the bus (e.g., a car bomb or mines), and use of the bus as a terrorist weapon.

A noted difference between the two bus industry groups is that none of the motorcoach respondents stated or implied that there is no threat of terrorism, whereas more than half of the responses from the tour/charter groups stated that they do not see a threat. This difference is partially attributed

to the claim that tour/charter passengers are often repeat customers and known to their drivers. The unpredictable starting, stopping, and destination points, as well as variations in schedules, may also reduce the risks of terrorism in the tour/charter bus industry.

4.2.2 Identification of Risk Management Techniques Available to Assess Potential Security Threats

Risk management techniques used by the industry were assessed by survey responses to the following two questions: (1) *What process do you use to determine your risk exposure?* (2) *What risk management techniques (probabilistic risk assessment tools, vulnerability assessments, cost/benefit models, etc.) are available to you to assess potential security threats?* Responses to these questions are provided in Tables 4-2a and 4-2b and Tables 4-3a and 4-3b.

TABLE 4-2a Process used to determine motorcoach risk exposure

Process Used to Determine Risk Exposure	Number of Respondents	Percent of Total
None.	1	14%
Manage risk based on past experience.	3	43%
Base risks on accidents/workman's comp/ training programs.	1	14%
Train drivers to assess risk re: passengers, situation, and who sits where.	1	14%
Decline unruly, argumentative, and intoxicated individuals.	2	29%
Monthly review of all accidents: preventable & non-preventable; retrain individuals with computerized test to achieve 100% safety awareness/preparation level.	1	14%
Manage risk based on terminal location, number of passengers, number of financial transactions per day, access points.	2	29%

TABLE 4-2b Process used to determine tour/charter bus risk exposure

Process Used to Determine Risk Exposure	Number of Respondents	Percent of Total
None.	4	44%
We review employee records; hire qualified drivers; do random drug screen tests/physicals.	1	11%
Increase awareness.	1	11%
Use large mirrors to check on passengers.	1	11%
Check drivers' backgrounds; call former employer; driving history/motor vehicle records (MVRs).	1	11%

TABLE 4-3a Risk management techniques used for motorcoach threats

Available Risk Management Techniques	Number of Respondents	Percent of Total
We model everything to cost.	2	29%
Receive security analysis from insurance company re: each location.	1	14%
ABA and Safety Council are looking into the risks.	1	14%
Receive help from special local investigation team.	1	14%
No financial resources established for assessment tools.	1	14%
Public Utility Commission (PUC) study.	1	14%

TABLE 4-3b Risk management techniques used for tour/charter bus

Available Risk Management Techniques	Number of Respondents	Percent of Total
None—surprised by the lack of information in our industry following 9/11.	5	56%
No need for/no access to risk assessment tools.	2	22%
No need for/no access to vulnerability assessment tools.	2	22%
No need for/no access to cost/benefit models.	1	11%
We receive information from California Bus Association.	1	11%
We receive information from American Bus Association.	1	11%
We receive information from United Motorcoach Association.	1	11%
Our insurance company sends us security information in letters and reports for our general awareness.	1	11%
I don't know; use common sense.	3	33%
More driver awareness during pre/post bus trips.	4	44%
Receive help from special local investigation team.	1	11%
No financial resources established for assessment tools.	1	11%
Public Utility Commission (PUC) study.	1	11%

Responses to the question on how risk exposure is determined indicate that the references to “process” and “risk exposure” were predominantly interpreted to relate to general risk, including work safety. The answers do not reveal an interpretation that relates to the determination of risks associated with terrorism. Further, there is no reference to any formal process for measuring risk exposure. There are references to measures for identifying risky activities (based on past experience, driver assessments) and for avoiding risky situations (refusal of service) and to processes to reduce risk (hiring practices). The motorcoach respondents more commonly applied some process to assess risk exposure than the tour/charter industry. These processes included analysis of past experience and accident reports, assessment of risk associated with a terminal’s location, and financial transactions.

With respect to risk management techniques, respondents referred to cost models, insurance company analyses of each location, and assistance from local investigation teams. It was also stated by some that the ABA and the Safety Council are assessing risks, and others said that they have no financial resources for assessment tools. Similar risk management strategies were indicated in survey responses from the tour/charter industry. However, a significant proportion of tour/charter respondents indicated surprise as to the lack of information made available on threats. Interestingly, a roughly equal proportion indicated that such information/assessments are not necessary. This divergence

in views was not seen in responses from motorcoach operators and coincides with the two groups’ perception of threat as seen in their responses to the question on perceived risks.

The commercial bus industry survey respondents do not include references to government agencies in their threat management strategies. In contrast, government organizations at all levels (federal, state, and local) are listed by the respondents as organizations relied on for the development of national security measures (Section 4.2.7).

4.2.3 Identification of Employee/Driver Hiring Procedures, Including Employee Identification/Verification Techniques, That Can Enhance Security and That Have Been Shown to Be Effective

Employee hiring and identification/verification procedures were assessed through survey answers to the following questions: *Have you revised your employee/driver hiring procedures and employee identification and verification techniques? (a) What are they now? (b) How will these be effective? (c) What other steps would help?* Responses to these questions are summarized in Tables 4-4a and 4-4b.

Depending on the bus operator and the bus operator’s clients, respondents describe their hiring practices to include Department of Justice fingerprinting requirements, U.S. DOT drug check requirements, and FMCSA safety regulations.

TABLE 4-4a Revised motorcoach employee/driver hiring procedures and identification techniques

Revised Hiring Practices/Verification Techniques	Number of Respondents	Percent of Total
No changes made.	2	29%
Yes, changes made.	3	43%
Yes, provide in-house training re: terrorist-response tactics/procedures to stop bus/call authorities.	4	57%
Considering adding a shield to further protect/separate drivers from passengers.	2	29%
Require fingerprinting in compliance with Department of Justice requirements.	1	14%
Increase use of 2-way communications on buses.	1	14%
Installed video cameras inside/outside terminal to verify drivers.	1	14%
What are they now?		
Employees have nametags/photo ID badges.	3	43%
Drivers must "sign out" a bus before taking it.	2	29%
Complete compliance with U.S.DOT regulations: previous employer check; motor vehicle record (MVR) checks; background checks (beyond minimum standards).	5	71%
Adhere to FMCSA safety regulation.	1	14%
Yes, more random drug testing; check on former employers/background checks.	1	14%
Use employee photo IDs/badges/clearance for certain areas.	3	43%
Installed video cameras inside/outside terminal to verify drivers.	1	14%
How will these be effective?		
Should be effective as they are.	3	43%
Hopefully we can ensure lengthy employment at U.S. companies.	1	14%
Need federal regulations for consistency.	1	14%
What other steps would help?		
In favor of establishing a federal CDLIS (Commercial Driver License Information System) so no matter where a driver goes, his/her CDL is traceable.	1	14%
Need better screening services and ability to pull an MVR from all states.	3	43%

Others specifically state that the current set of requirements is sufficient and should be effective. Revised hiring procedures listed by the respondents include the addition of terrorist-response training, visual (camera) driver verification, photo IDs, more thorough employee checks, and drug testing (Tables 4-4a and 4-4b). No apparent differences regarding hiring practices were seen between the two industry groups. In its ATAP, the ABA suggests the establishment of minimum hiring standards with criminal background checks on new employees and photo IDs for all employees.

One of the survey respondents listed as an industry need the development of a national commercial driver information system that can track the records of drivers across state boundaries. This may be achieved by the planned U.S. DOT/TSA TWIC. As described in the previous chapter, the goal of the TWIC credentialing program is to provide a uniform, nationwide standard for secure identification of workers across all transportation modes. The TWIC will likely use SmartCard technology, including biometrics. At this stage

of TWIC development, technology and common credentials for all TWIC workers are being assessed by the TSA.²² The ABA suggested in its ATAP that the TSA use the bus industry as a trial industry for the TWIC program because the relatively small size of this industry would make it easier to work with. This strategy would also ensure early bus industry participation in TWIC, which may be particularly desirable because up to this time there has been little federal assistance available for bus industry security.

4.2.4 Identification of Current Security Procedures at Commercial Bus Training Schools and Potential Threats, Including Student Identification/Verification Procedures

Information on security procedures and potential threats at training schools was gathered from interviews with training schools and from the following question presented to bus company survey respondents: *Do you use training schools? If yes,*

22. Further information on TWIC status can be obtained from www.tsa.gov/public/display?content=364.

TABLE 4-4b Revised tour/charter bus employee/driver hiring procedures and identification techniques

Revised Hiring Practices/Verification Techniques	Number of Respondents	Percent of Total
No changes made.	5	56%
Yes, changes made.	3	33%
Yes, purchased photo ID machine to make employee photo IDs.	2	22%
Yes, provide in-house training re: terrorist-response tactics/procedures to stop bus/call authorities.	2	22%
What are they now?		
Check and verify previous employment history for full- and part-time candidates.	2	22%
Check and verify previous employment history for full-time candidates only.	4	44%
Require a drug screen per U.S.DOT requirements.	5	56%
Verify candidates are School Pupil Activity Bus (SPAB)-certified in CA.	1	11%
Require fingerprinting in compliance with Department of Justice requirements.	1	11%
All new hires checked by DAC or similar verification services.	3	33%
Perform criminal background checks.	1	11%
Perform motor vehicle record (MVR)/driving history checks.	2	22%
Use employee photo IDs/badges/clearance for certain areas.	1	11%
How will these be effective?		
Effective as it is—no change.	4	44%
Our policy is to use only SPAB-certified drivers.	1	11%
Hopefully we can ensure lengthy employment at U.S. companies.	1	11%
Enforces accountability and monitoring of drivers and passengers.	1	11%
Need federal regulations for consistency.	1	11%
What other steps would help?		
Establish a federal database through which companies can share employee information such as background/criminal/safety/and drug test data.	1	11%
Initiate and use IDs that are more difficult to duplicate.	1	11%
Including a criminal background check would be good.	1	11%
Have drivers sign a form so we can do a background check freely.	1	11%

what security procedures are employed at commercial training schools for your industry (e.g., student identification/verification procedures), and do you consider these to be effective? Bus company responses to this question are presented in Tables 4-5a and 4-5b.

As indicated by the survey responses, much of the bus industry does not rely on driver training schools; it hires experienced drivers or trains its own. As noted in the trucking industry portion of this survey, because the survey population is biased toward larger companies, it is possible that

recent graduates from driver training schools may be more commonly employed by smaller companies.

As with the trucking industry, driver training schools are generally designed to meet the needs of employers. Because of the wide variety of hiring practices within the bus industry, training school student admissions are unlikely to meet the more stringent industry hiring practices. The establishment of uniform minimum hiring standards for the bus industry would likely set the threshold for student admissions. Furthermore, none of the driving schools contacted had anti-terrorism or

TABLE 4-5a Motorcoach use of training schools and level of effectiveness

Use and Effectiveness of Training Schools	Number of Respondents	Percent of Total
No.	1	14%
No, we only hire drivers with experience and a current commercial driver's license (CDL).	2	29%
No, we provide in-house training (supplemented by contracting out materials).	3	43%
Yes, we rely on local transit agencies.	1	14%

TABLE 4-5b Tour/charter buses use of training schools and level of effectiveness

Use and Effectiveness of Training Schools	Number of Respondents	Percent of Total
No.	1	11%
No, we only hire drivers with experience and a current commercial driver's license (CDL).	2	22%
No, we provide in-house training.	4	44%
No, the bus industry has a lack of training schools.	1	11%

awareness training as part of their curricula. If the ABA becomes part of the ATA HWP, awareness training would be available to all drivers in the growing number of participating states.

4.2.5 Identification of Security Procedures and How Technology Can or Is Being Used to Address Security Issues

Survey questions were designed to gather information on bus company security procedures in three time frames: pre-9/11, current (post-9/11), and the near future. Pre-9/11 security procedures at bus companies were addressed by the following question: *What national security measures were in place prior to 9/11 to address what threat? If None: Why?* Responses to this question are presented in Tables 4-6a and 4-6b.

Current (post-9/11) commercial bus company security procedures were addressed by the following three survey questions: (1) *What national security measures did your organization take following 9/11 regarding: employees, customers,*

public, procedures, other? If None: Why? (2) *What national security measures were instituted by your clients after 9/11, and how do these measures impact security and your operations?* (3) *Can you summarize what other members of your industry are doing?* Responses to these questions are presented in Tables 4-7a and 4-7b, 4-8a and 4-8b, and 4-9a and 4-9b.

Near-future changes in commercial bus company security procedures were assessed by survey responses to the question: *What additional national (anti-terrorism) security measures are planned for this year and over the next several years? If None: Why?* Responses to these questions are presented in Tables 4-10a and 4-10b.

The use of specific security technology in the commercial bus industry was assessed by survey responses to the following question: *What technologies are you employing to address security issues? If None, Why?* Responses to this question are presented in Tables 4-11a and 4-11b.

Based on the survey responses summarized in Tables 4-6a and 4-6b, much of the commercial bus industry had no anti-terrorism security measures in place prior to 9/11. The few relevant measures listed as in place were instituted to protect

TABLE 4-6a Pre-9/11 motorcoach security measures

Security Measures in Place Prior to 9/11	Number of Respondents	Percent of Total
None.	6	86%
Always had security guards in terminals for safety/security.	1	14%
Used a driver training course to promote safe driving; taught conflict resolution techniques re: operational issues; customer interaction; emergency procedures.	1	14%
Performed criminal history and driving history checks to protect the company from having a convicted criminal or individual with bad driving habits.	1	14%

TABLE 4-6b Pre-9/11 tour/charter bus security measures

Security Measures in Place Prior to 9/11	Number of Respondents	Percent of Total
None.	6	67%
Video cameras inside/outside terminals/on buses for theft management.	1	11%
Employ policemen to ride bus for driver/passenger safety.	1	11%
Not aware of any—new hire.	1	11%
If None: Why?		
No apparent threats were perceived prior to 9/11.	5	56%
Too costly for small companies to acquire and implement technologies.	1	11%
We have procedures only for accident—to notify emergency transit and company officials.	1	11%
We have safety meetings each month.	2	22%

TABLE 4-7a Post-9/11 motorcoach security measures

Security Measures Implemented After 9/11	Number of Respondents	Percent of Total
Drivers issued preprogrammed cell phones for 911 and company emergency operations centers' numbers.	2	29%
Surveillance cameras (existing/new digital, state-of-the-art) located in terminals.	1	14%
Added additional security guards.	2	29%
Began "wandering" passengers randomly at certain terminals.	1	14%
Drivers immediately notified with tangible procedures to increase awareness of surroundings, operations, general public, and passengers.	4	57%
Developed and implemented a training video course on managing aggressive behavior (terrorist).	3	43%
Presented material to deal with robbery and hijacking.	1	14%
Provided drivers with interactive computer-based training course to manage aggressive behavior (terrorist).	1	14%
Follow U.S. DOT checklist and included seven additional security items.	2	29%
Issued IDs for all employees.	3	43%
Restricted front seat usage.	1	14%
Hands-free wireless phone in each bus.	1	14%
ID required for all live haul passengers.	1	14%

TABLE 4-7b Post-9/11 tour/charter bus security measures

Security Measures Implemented After 9/11	Number of Respondents	Percent of Total
None.	3	33%
Drivers instructed to report all luggage, baggage, packages left on the bus to the office/terminal.	2	22%
Drivers instructed to park in well-lit areas when leaving bus unattended during breaks.	1	11%
Drivers instructed to check buses before entering to ensure no tampering has occurred.	2	22%
We follow safety regulations set by federal agencies.	1	11%
Parking permits required.	1	11%
Drivers must pass checkpoints in our area.	1	11%
Drivers instructed to report anything suspicious (people or items) around the bus.	2	22%
We screened employees through a service.	2	22%
Customers show ID.	1	11%
Employees wear picture IDs/show credentials when picking up passengers.	1	11%
Drivers hauling children are required to be fingerprinted per state law.	1	11%
We operate with repeat customers; no threat perceived.	1	11%
We're a small company.	1	11%

TABLE 4-8a Post-9/11 security measures instituted by motorcoach clients

Security Measures Instituted by Clients After 9/11	Number of Respondents	Percent of Total
None.	3	43%
Military installations have prohibited our buses (intercity/scheduled) for pickup and delivery.	1	14%

TABLE 4-8b Post-9/11 security measures instituted by tour/charter bus clients

Security Measures Instituted by Clients After 9/11	Number of Respondents	Percent of Total
None.	2	22%
Military installations required company paperwork/identification materials/commercial driver's license (CDL)/photo ID/employee signatures for pickup and delivery.	2	22%
Clients required company paperwork, insurance information, CDL/photo ID for pickup and delivery.	3	33%
Clients required bomb-sniffing dogs when buses went to military/shipyard facilities.	2	22%
Clients search coaches.	1	11%

TABLE 4-9a What other bus industry members are doing (motorcoach response)

What Other Bus Industry Members Are Doing	Number of Respondents	Percent of Total
Don't know.	1	14%
Most are watching what we do.	1	14%
Same thing as others are doing.	2	29%
Some are doing nothing; others are doing something, but it doesn't really protect the passengers.	2	29%

TABLE 4-9b What other bus industry members are doing (tour/charter responses)

What Other Bus Industry Members Are Doing	Number of Respondents	Percent of Total
Don't know; not aware of what other members of our industry are doing.	4	44%
Understand they are doing pretty much the same as we are.	2	22%
We tend to get more inquiries regarding former employees when they apply at another company.	1	11%
Aware of some using the NRoute video system.	1	11%

TABLE 4-10a Planned motorcoach security measures

Additional Security Measures Planned	Number of Respondents	Percent of Total
Either considering or upgrading on-board communications or GPS technology.	2	29%
Either considering or upgrading integrated GPS or telephone communications or linking to Internet for tracking buses.	4	57%
Considering adding new high-grade digital cameras.	2	29%
Will promote a massive training blitz.	1	14%
Will include new "panic button" to assist in immediate location of vehicle and immediate notification to nearest 911 service to the vehicle.	1	14%
Improve on-board lighting.	2	29%

TABLE 4-10b Planned tour/charter bus security measures

Additional Security Measures Planned	Number of Respondents	Percent of Total
None.	2	22%
Heightened awareness of who is on or around bus property.	4	44%
Report all suspicious packages or persons to the office/terminal.	1	11%
Dispatchers instructed to evaluate each situation and report to proper authorities as needed.	1	11%
Make proper background checks on prospective employees.	1	11%
Handling baggage according to state or federal requirements.	1	11%
Additional training for drivers via video; aggression management.	1	11%
Considering on-board cameras/GPS equipment; waiting to see what government grants.	1	11%
If None: Why?		
We ensure buses are secured on property overnight or when unattended.	1	11%
Prior to 9/11, our industry was too lax—didn't perceive any threats.	1	11%
Too costly for small companies to acquire and implement technologies.	1	11%
We put out annual security memo regarding potential threats.	1	11%

TABLE 4-11a Motorcoach security technologies

Technologies Employed to Address Security Issues	Number of Respondents	Percent of Total
Company-provided cell phones.	4	58%
Security wands.	2	29%
Company-provided telephones linked to local 911 operations.	3	43%
Video cameras.	2	29%
Satellite technologies on board buses.	2	29%
Drivers use self-provided cell phones.	1	14%
We use closed circuit video cameras inside and outside the terminals.	1	14%

TABLE 4-11b Tour/charter bus security technologies

Technologies Employed to Address Security Issues	Number of Respondents	Percent of Total
None.	1	11%
We follow recommendations made in reports sent from organizations/insurance company.	1	11%
Too small a company to acquire and implement technologies.	2	22%
We use 2-way radio communications.	1	11%
We use wireless communications.	6	67%
We use company-provided cell phones.	2	22%
Drivers use self-provided cell phones.	1	11%
We use 24-hour security patrol at bus terminal/garage locations.	1	11%
Use closed circuit video cameras inside and outside the terminals.	1	11%
Check passengers' IDs via credit cards.	1	11%
If None: Why?	2	22%
Business slowdown/labor intensive permitting for our buses.	1	11%

passengers, drivers, and property from common crimes. These include placing cameras, employing police officers, and checking employees' employment and criminal history (all single respondent reports). Many of the tour/charter industry respondents indicated that their reason for not having pre-9/11 security measures was the lack of a threat, and, as previously indicated, many of the tour/charter industry respondents still do not perceive a significant threat to their industry from terrorism.

Although most of the survey respondents in both commercial bus industry groups had no anti-terrorism measures in place prior to 9/11, the same respondents reported a relatively large number of measures in place after 9/11. The motorcoach industry reported a mix of the following four types of measures:

- **Addition of Technology**—cell phones, “emergency only” programmed phones, and surveillance cameras.
- **Additional Personnel**—more security guards.
- **Focused Training**—video on managing aggressive behavior and robberies and hijacking, as well as a computer-based course on aggressive behavior.
- **Procedures**—notification of suspicious items/activities, issuance of ID cards, and adherence to U.S. DOT checklist (presumably with respect to bus maintenance/inspections).

Some of the tour/charter industry respondents continued to report that no measures were implemented. The remainder of

the tour/charter respondents reported only procedural measures such as instructing drivers to report suspicious activities and unclaimed items, employee screening, issuance of ID cards, and bus inspections. Several of the respondents in both bus industry groups referred to low-cost/no-cost measures such as securing baggage bay doors when not attended, walk-around driver inspections after stops, avoidance of high-risk (i.e., low-visibility) parking areas, and en route driver check-in times/procedures. More costly security measures not listed as currently used by the bus companies include dividers to protect the driver's back, night-lights in the passenger compartment, external trouble-alert lights along the full length of the coach, luggage inspection (random or otherwise), tracking technology (e.g., GPS), and panic buttons.

Responses to the question on what others in the industry are doing with respect to security provided little added insight into security-related activities of the commercial bus industry (Tables 4-9a and 4-9b). A tour/charter respondent mentioned a company using the “NRoute video” system, which allows off-site video monitoring and recording of all activities on a bus. One motorcoach respondent commented that none of the bus security measures they were aware of improves passenger protection.

With regard to the security requirements placed on bus operators by their clients (Tables 4-8a and 4-8b), the respondents report strict requirements placed on them at military installations. Military installations required company paperwork and identification materials including a current CDL

with photo and employee signatures for pick-up and delivery. Other clients also added requirements for company paperwork, insurance information, presentation of a CDL with photo ID for pick-up and delivery, and coach searches. Some buses going to military or shipyard facilities were required to be searched with bomb-sniffing dogs.

Commercial bus industry respondents reported a variety of security measures that are either planned or under consideration (Tables 4-10a and 4-10b). Planned security measures reported by the motorcoach respondents are primarily technology- and hardware-based security measures such as improved communications and GPS, phone/GPS/Internet-linked communications, digital cameras, panic buttons, and on-board lighting. Training is also mentioned. In contrast, only one of the tour/charter industry respondents listed consideration of installing security technology (i.e., on-board cameras and GPS); however, this was said to depend on the receipt of a government grant. Many of the tour/charter industry respondents reported procedural changes, with the most common change being a heightened awareness of who is on or around the bus. Other listed measures are similar to those listed as implemented after 9/11. These included training, more thorough background checks in new hires, reporting of suspicious packages or persons, and dispatcher evaluation of reports and conveyance to proper authorities. Some respondents plan no new security measures, listing high costs as a factor. Others claim that existing measures are sufficient.

In response to the question regarding technologies employed to address security issues, the motorcoach respondents indicated use of the following technologies: company-provided cell phones linked to 911, driver-supplied cell phones, security wands (hand-held metal detectors), video cameras, satellite systems (e.g., GPS), and three-way radios. One company

provides cell phones with direct connections (i.e., two-way radios) that will soon be available with GPS for monitoring vehicle location. Another company provides products such as panic buttons for emergency notification in addition to vehicle location with options for operating status. One of the tour/charter respondents reports the use of credit cards to verify passenger identity.

Commercially available security technologies that were not mentioned by any of the commercial bus industry respondents but that may be applicable to this industry include access-limiting technologies (e.g., operated by code, card, or biometrics), remote or on-board vehicle disabling, off-course alerts in conjunction with continuous vehicle tracking, metal detectors, and gamma-ray/X-ray luggage screeners.

4.2.6 Identification of Issues or Problems Associated with the Implementation and/or Use of Specific Security Measures

Industry problems or issues associated with implementation of security measures were assessed based on responses to the question: *What problems or issues did you experience with the implementation and/or use of specific national security measures or technologies?* Responses to this question are presented in Tables 4-12a and 4-12b.

In general, when a company selects and adopts a security measure and technology, ease of adoption and implementation become one of the selection criteria. Two of the problems or issues with implementation of security technologies listed by the survey respondents include employee reluctance to change or add security procedures and technologies and (perhaps related) perceptions that there is not a significant terrorist threat to the commercial bus industry (as discussed in Sec-

TABLE 4-12a Motorcoach problems with implementing technologies

Problems/Issues with Implementing Technologies	Number of Respondents	Percent of Total
None.	2	29%
Difficulty in finding vendor to support on-board communications.	1	14%
Not enough surveillance at terminals, bus storage, parking areas, garages, etc.	2	29%
Employees reluctant to change to new security measures/technologies.	1	14%
Wide area of operation and use of other companies' terminals.	1	14%

TABLE 4-12b Tour/charter bus problems with implementing technologies

Problems/Issues with Implementing Technologies	Number of Respondents	Percent of Total
None.	6	67%
We did not acquire or implement any technologies.	1	11%
We did not experience any problems.	1	11%
Drivers didn't believe that the risk of terrorists is present in our country.	1	11%
Might consider NRoute video communications; need to consider cost.	1	11%

tion 4.2.1). Particularly among the tour/charter industry respondents, no problems were listed for technology implementation. This may be due to a perception that no new technologies are needed, which may be inferred from the lack of planned technology changes reported. Several motorcoach respondents commented that facility or terminal security limitations also affect (and present a problem) for bus security. Particular issues include sufficient surveillance of terminals, parking areas, and garages and surveillance differences among terminals. Although it is not mentioned in response to the question on problems with technology implementation, the cost of additional security technology is likely to be an important consideration for this industry dominated by small companies.

4.2.7 A Summary of Security Research and Development Related to the Commercial Bus Industry and What Other Research Would Be Beneficial

Three survey questions addressed the industry perception of what research is being done that may be relevant to the commercial bus industry. These questions were: (1) *What*

research is being done that would assist you in meeting your national security needs? (2) What assistance, research, development, training, technology, and other activities or services would help you in achieving the desired and necessary level of security? Who should provide these needs? (3) What organizations do you and your industry rely on for the development of national (anti-terrorism) security measures (procedures, technology, training, etc.)? Tables 4-13a and 4-13b, 4-14a and 4-14b, and 4-15a and 4-15b present responses to these questions.

Motorcoach industry responses to the question on relevant current security research identified government, security, and bus industry organizations. The organizations included the U.S. DOT/Volpe Center; FMCSA; FBI; Bureau of Alcohol, Tobacco, and Firearms (ATF); ABA; and the Atlantic Bus Operators Association. The information provided by the respondents does not identify specific research that would “assist” their industry, but strongly implies that the industry depends on associations and government-sponsored activities to fill its research needs. A substantial proportion of the responses from the tour/charter bus industry respondents indicated no knowledge of ongoing research; others mentioned a general awareness of research reports and ABA memos

TABLE 4-13a Motorcoach security research in progress

Research in Progress to Assist in Meeting Security Needs	Number of Respondents	Percent of Total
Volpe Center research.	2	29%
FMCSA research.	1	14%
ABA research.	4	57%
United Motorcoach research.	3	43%
Work closely with the FBI; the Bureau of Alcohol, Tobacco, and Firearms (ATF); and local police in developing a safety-training program.	1	14%
Other: Atlantic Bus Operators Association.	1	14%

TABLE 4-13b Tour/charter bus security research in progress

Research in Progress to Assist in Meeting Security Needs	Number of Respondents	Percent of Total
Don't know; not aware of any research being done.	5	56%
Generally aware of research/publications, but have no experience in acquiring information.	2	22%
ABA does research; sends out memos re: results.	2	22%

TABLE 4-14a Desired motorcoach security research

Research Activities Desired to Enhance Level of Security	Number of Respondents	Percent of Total
None.	3	43%
We need more wandering resources.	2	29%
We need more surveillance equipment.	1	14%
Enhance our ticketing systems to help track individuals that the government agencies are looking for.	1	14%
Need to finalize on-board communications and network.	1	14%
Need money from the Feds—a fair share for the bus industry.	1	14%
Who should provide these needs?		
National security counselors; local and federal government should supply information to us.	5	71%

TABLE 4-14b Desired tour/charter bus security research

Research Activities Desired to Enhance Level of Security	Number of Respondents	Percent of Total
None.	3	33%
We rely on local transit authority.	1	11%
Who should provide these needs?		
U.S. Customs needs to beef up the borders.	1	11%
Immigration and Naturalization Service (INS) needs to identify who is coming across the border and keep track of them.	1	11%
Military should protect borders and provide national security.	1	11%

addressing research activities. The limited awareness of research activities in the tour/charter bus industry coincides with its lower-tech and procedure-based security measures and lower perception of threat.

With respect to desired research activities, several respondents in both the motorcoach and the tour/charter bus industry indicated that there is no need for additional research activities to help them achieve their desired level of security. Other respondents from the motorcoach industry listed the need to obtain resources such as wands and surveillance equipment and suggested linking ticketing systems with government lists of suspected individuals. The need for operator funds rather than research was also mentioned. With respect to who should provide the needed research, motorcoach respondents consistently called for government provision of research needs. Tour/Charter bus industry respondents did not identify research needs, further supporting the obser-

vation that the tour/charter bus industry has a low perception of threat.

Many of the technological options commonly promoted by vendors (e.g., identification and access-limiting technologies, remote or on-board vehicle disabling, vehicle tracking, covert communications, metal detectors, and gamma-ray/X-ray luggage screeners) were not listed as areas for desired research by either of the commercial bus industry subgroups. The absence of these items coincides with the industry's general perception of a low terrorist risk and the usefulness of commonly promoted measures.

Responses to the question of what organizations the industry relies on for anti-terrorist measures listed industry associations; government organizations; and various other sources (insurance and consulting organizations, the local police, bus/truck inspection stations throughout the continent, and other bus companies).

TABLE 4-15a Organizations used for developing motorcoach security measures

Organizations Relied Upon for Developing National Security Measures	Number of Respondents	Percent of Total
American Bus Association (ABA).	3	43%
FMCSA.	2	29%
United Motorcoach Association.	1	14%
Commercial Vehicle Safety Alliance (CVSA).	1	14%
All local city, state, and bus/truck inspections countrywide and from Canada and Mexico.	1	14%
FBI, Bureau of Alcohol, Tobacco, Firearms (ATF), and local police and motorcoach companies in Ireland.	1	14%
Consulting organization.	1	14%

TABLE 4-15b Organizations used for developing tour/charter bus security measures

Organizations Relied Upon for Developing National Security Measures	Number of Respondents	Percent of Total
None.	3	33%
California Bus Association.	1	11%
American Bus Association.	1	11%
United Motorcoach Association.	4	44%
State government.	5	56%
Federal government.	6	67%
Insurance company.	1	11%

4.2.8 Information on What Has Been Done in Other Countries to Enhance the Security of Commercial Bus Safety, Particularly in Countries That Have Had to Deal with Significant Terrorist Activity

Industry knowledge of security procedures in other countries was assessed from survey responses to the question: *Can you comment on what has been done in other countries to enhance the security of commercial bus safety?* Responses to this question are presented in Tables 4-16a and 4-16b.

Most of the commercial bus industry respondents were not aware of security measures in other countries. A few

respondents mentioned being aware of bus-related terrorist attacks in other countries. One motorcoach respondent described measures such as driver isolation and increased security at terminals.

As discussed in the trucking industry chapter (Section 3.2.8), embassy officials were generally not willing or able to discuss bus-related anti-terrorism measures. Based on news media reports, it appears as though Israel may have relatively highly developed strategies for mitigating terrorist threats. These strategies include security personnel on buses and at bus stops, armored buses, route changes, and perhaps most importantly, driver awareness and action with respect to suspicious behavior.

TABLE 4-16a Motorcoach security measures used in other countries

Security Measures Used in Other Countries	Number of Respondents	Percent of Total
No; don't know.	1	14%
Yes, aware of other countries' problems.	2	29%
Increased security at terminals; driver enclosures.	1	14%

TABLE 4-16b Tour/charter bus security measures used in other countries

Security Measures Used in Other Countries	Number of Respondents	Percent of Total
No, don't know.	6	67%
No, not aware of what has been done in other countries.	2	22%

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- Federal Register*, July 16, 2002, Vol. 67, No. 136, pp. 46622–46624.
- “Providing Secure Truck Operations,” Report of the American Society of Safety Engineers (ASSE), Transportation Practice Specialty, May 2002, Des Plains, IL.
-

GLOSSARY OF ACRONYMS

ABA: American Bus Association	ID: identification
ACE: Automated Commercial Environment	IME: Institute for Makers of Explosives
ASSE: American Society of Safety Engineers	IT: information technology
ATA: American Trucking Associations	ITDS: International Trade Data System
ATAP: anti-terrorism action plan	ITS: Intelligent Transportation System
ATF: Bureau of Alcohol, Tobacco, and Firearms	LTL: Less Than Truck Load
CATS: Criminal Apprehension Team (Los Angeles County Sheriff's Department)	MVR: motor vehicle record
CATV: cable television	NCIC: National Crime Information Center
CCTV: closed circuit television	NDR: National Driver Register
CDL: commercial driver's license	NTTC: National Tank Truck Carriers
CDLIS: Commercial Driver's License Information System	OTR: over the road
CMV: commercial motor vehicle	PUC: public utility commission
C-TPAT: Customs-Trade Partnership Against Terrorism	SAIC: Science Applications International Corporation
CVSA: Commercial Vehicle Safety Alliance	SPAB: School Pupil Activity Buses
DHS: Department of Homeland Security	TEA-21: Transportation Equity Act for the 21st Century
DoD: Department of Defense	TIOC: Transportation Information Operations Center
FBI: Federal Bureau of Investigation	TL: Truck Load
GPS: global positioning satellite	TrucksISAC: Trucking Information Sharing and Analysis Center
HAZMAT: hazardous materials	TSA: Transportation Security Administration
H-ISAC: Highway Information Sharing and Analysis Center	TWIC: Transportation Worker Identification Card
HWP: Highway Watch Program	U.S. EPA: United States Environmental Protection Agency
IANA: Intermodal Association of North America	9/11: September 11, 2001

APPENDIX A

**LETTER OF INTRODUCTION AND LETTER
OF REQUEST FOR INFORMATION**



TRANSPORTATION RESEARCH BOARD

OF THE NATIONAL ACADEMIES

September 25, 2002

Name

Position

Company

Address

City, State, Zip Code

Dear Mr./Ms.:

The National Academies, through the Transportation Research Board (TRB), has recently initiated a Commercial Truck and Bus Safety Synthesis Program (CTBSSP). The program is sponsored by the Federal Motor Carrier Safety Administration (FMCSA) and governed by an oversight panel consisting of representatives from commercial truck and bus carriers; relevant industry associations such as the American Trucking Association, American Bus Association, Motor Freight Carriers Association, and the Owner-Operator Independent Drivers Association; organized labor; state agencies; and others.

The purpose of the CTBSSP is to prepare four synthesis studies annually that address concerns in the area of commercial truck and bus safety. A synthesis report is a relatively short document (40 to 60 pages) that summarizes existing practice in a specific technical area based typically on a literature search and a survey of relevant organizations (e.g., state departments of transportation [DOTs], enforcement agencies, commercial truck and bus carriers, or other organizations appropriate for the specific topic). The resulting reports will be widely distributed throughout the commercial truck and bus industry.

One of the first synthesis topics selected by the CTBSSP's oversight panel is "Security Measures in the Commercial Trucking and Bus Industries." The purpose of this synthesis report is to summarize security measures that have been implemented in the commercial trucking and bus industries, primarily (but not exclusively) as a result of the terrorist attacks of September 11, 2001. The findings of this project will provide an up-to-date state of the practice on security measures that can be shared with the commercial truck and bus industry to assist carriers that are evaluating their security systems and programs and will help identify relevant research and development activities needed to address the industry's security concerns.

I am sending you this letter to ask for your participation in a survey that will begin shortly to collect security-related information for the synthesis report. Science Applications International Corporation (SAIC) has been selected by the oversight panel to conduct the survey and the analysis. SAIC assigned Mr. David M. Friedman and Ms. Carol Mitchell of SAIC to conduct the assignment and collect the needed information. They will be conducting brief telephone interviews with top safety/security personnel of selected commercial trucking and bus organizations to collect information on the following topics:

Key threats to the commercial trucking and bus industries.

Risk management techniques available to assess potential security threats.

Employee/driver hiring practices, including effective identification/verification techniques to enhance security.

How technology can or is being used to address security issues.

Type of security research and development being conducted for the commercial truck and bus industries.

Issues/problems associated with implementing or use of specific security measures.

Potential threats and current security procedures at commercial truck and bus driver training schools.

Current student identification/verification procedures at commercial truck and bus driver training schools.

The letter that follows is a request from SAIC for you to review the attached questionnaire to gain familiarity with the requested information. The questionnaire presents the formal questions that will be asked during the brief telephone interviews. However, if you prefer, you may email, fax, or return your responses by regular mail to Mr. Friedman at the specified address provided in the letter.

Due to the highly sensitive nature of this information, please note that your responses will be kept on a company confidential, need-to-know basis, accessed only by the two SAIC interviewers. The information obtained from individual companies will be consolidated into a report that will conceal the specific sources and will not divulge security-related activities of any single organization or a specific industry sub-group. The report will be reviewed by the CTBSSP oversight panel to ensure that sensitive security-related information is not compromised.

Your participation in this assessment would be greatly appreciated. Thank you for sharing your awareness, insight, use of technology, and procedures to better assist all commercial trucking and bus organizations in implementing positive security measures. Should you have any questions or need additional information on the CTBSSP, please feel free to contact me at 202/334-3089.

Sincerely,

Christopher W. Jenks
 Manager, CTBSSP
 Transportation Research Board

Enclosure



October 8, 2002

Name
Position
Company
Address
City, State, Zip Code

Dear Mr./Ms.:

Subject: Information Collection for the National Academies, Transportation Research Board,
Commercial Truck and Bus Safety Synthesis Program.

Dear Mr./Ms.:

The Transportation Research Board (TRB) of the National Academies selected Science Applications International Corporation (SAIC) to conduct a synthesis project designed to compile information on security measures that have been implemented in the commercial trucking and bus industries, primarily (but not exclusively) as a result of the terrorist attacks of September 11, 2001 (hereafter referred to as 9/11). The findings of this project will provide an up-to-date state of the practice to help identify relevant research and development activities needed to address the industry's security concerns. The study is specifically designed to:

- Identify security measures implemented by the commercial trucking and bus industries to promote the safety of their employees, customers, the general public, and the safe and secure transport of their cargo (including hazardous materials).
- Describe their security measures in place prior to and after 9/11.
- Address other issues related to security measures.
- Identify areas for further research and development.

You will be contacted by me or my colleague, Carol Mitchell, by telephone, in the next 5–10 business days for a brief telephone interview regarding your responses to a set of specific questions (see the attached questionnaire) approved by TRB and an oversight panel consisting of industry representatives. If you prefer, you may email, fax, or return your responses by regular mail to my address listed below. Responses are requested for receipt *no later than October 22, 2002* for report submission.



Page 2, Synthesis Program

SAIC understands the sensitive nature of these questions and will treat your responses in a confidential manner. Your responses will remain anonymous, and only the aggregated results will be compiled into a final report for submission to the Transportation Research Board.

Thank you for participating in this assignment, and I wish you much continued success in your business endeavors.

Sincerely,

David M. Friedman, Program Manager
SAIC
8301 Greensboro Drive, M/S E-5-8
McLean, VA 22102-3600
Phone: (703) 676-4559
Fax: (703) 676-7820
FriedmanD@saic.com

Other SAIC Contact:
Carol Mitchell, Analyst
SAIC
carol.mitchell@saic.com
Phone: (805) 594-1479

cc: Christopher W. Jenks, Manager, CTBSSP, Transportation Research Board.
Attach: Questionnaire to Identify Security Measures in the Commercial Trucking
and Bus Industries

APPENDIX B
SURVEY QUESTIONNAIRES

COMMERCIAL TRUCKING INDUSTRY QUESTIONNAIRE

INSTRUCTIONS:

Please review the following questions. You will be contacted for a brief telephone interview. If desired, you may complete the questionnaire and e-mail, fax, or mail your responses to: Mr. David Friedman, SAIC, 8301 Greensboro Drive, M/S E-5-8, McLean, VA, 22102; Fax: (703) 676-7820. Please e-mail your request for an electronic version/send response to: Friedmand@saic.com.

A. Respondent-Specific Identifiers:

Organization: _____
Respondent's Name: _____
Position: _____
Address: _____
Address: _____
Phone Number: _____
Fax Number: _____
E-Mail: _____
Web Site: _____

B. Information about your Company (You may omit information if it is on your web site):

Industry Group: (e.g. Tanker, HAZMAT, LTL,) _____
Type of Services: (e.g. Contract, LTL, etc.) _____
Type of Products: (e.g. general cargo, unknown cargo, hazardous material, military) _____
Size of Firm: (e.g. vehicles, employees, revenue, etc.) _____
Years in Business: _____
Other Descriptors: _____

Restriction of Information Use (Respondent Instructions): _____

C. Security Measures:

What do you perceive to be the key national security (terrorism-related security) threats to your commercial trucking operations, and why? _____

What national security measures did your organization take in response following 9/11 regarding: employees, customers, public, cargo transport, hazardous material, other: _____
a. If None: Why? _____

What additional national (anti-terrorism) security measures are planned for this year? Over the next several years? _____
a. If None: Why? _____

What national security measures were in place prior to 9/11 to address what threat? _____
a. If None: Why? _____

Have you revised your employee/driver hiring procedures and employee identification/verification techniques? _____

What are they now? _____

How will these be effective? _____

What other steps would help? _____

What process do you use to determine your risk exposure? _____

What risk management techniques (probabilistic risk assessment tools, vulnerability assessments, cost/benefit models, etc.) are available to you to assess potential security threats? _____

What technologies are you employing to address security issues? _____

a. If None, Why? _____

What problems or issues did you experience with the implementation and/or use of specific national security measures or technologies? _____

Can you summarize what other members of your industry are doing? _____

What research is being done that would assist you in meeting your national security needs?

What organizations do you and your industry rely on for the development of national (anti-terrorism) security measures (procedures, technology, training, etc.)? _____

Do you use training schools? If yes, what security procedures are employed at commercial training schools for your industry (e.g., student identification/verification procedures), and do you consider these to be effective? _____

Can you comment on what has been done in other countries to enhance the security of commercial truck safety? _____

What national security measures were instituted by your shippers and consignees after 9/11, and how do these measures impact security and your operations? _____

What assistance, research, development, training, technology, and other activities or services would help you in achieving the desired and necessary level of security? Who should provide these needs?

Additional Space for Your Answers (Please indicate the question you are answering):

Other Security-Related Comments/Information:

Thank you for your assistance!

COMMERCIAL BUS INDUSTRY QUESTIONNAIRE

INSTRUCTIONS:

Please review the following questions. You will be contacted for a brief telephone interview. If desired, you may complete the questionnaire and e-mail, fax, or mail your responses to: Mr. David Friedman, SAIC, 8301 Greensboro Drive, M/S E-5-8, McLean, VA, 22102; Fax: (703) 676-7820. Please e-mail your request for an electronic version/send response to: Friedmand@saic.com.

A. Respondent-Specific Identifiers:

Organization: _____
Respondent's Name: _____
Position: _____
Address: _____
Address: _____
Phone Number: _____
Fax Number: _____
E-Mail: _____
Web Site: _____

B. Information about your Company (You may omit information if it is on your web site):

Industry Group: (e.g. Tours, Intercity, etc.,) _____
Type of Services: (e.g. Contract, Scheduled, etc.) _____
Size of Firm: (e.g. vehicles, employees, revenue, etc.) _____
Years in Business: _____
Other Descriptors: _____

Restriction of Information Use: (Respondent Instructions): _____

C. Security Measures:

What do you perceive to be the key national security (terrorism-related security) threats to your commercial bus operations, and why? _____

What national security measures did your organization take in response following 9/11 regarding: employees, customers, public, procedures, other: _____

a. If None: Why? _____

What additional national (anti-terrorism) security measures are planned for this year and over the next several years? _____

a. If None: Why? _____

What national security measures were in place prior to 9/11 to address what threat? _____

a. If None: Why? _____

Have you revised your employee/driver hiring procedures and employee identification and verification techniques? _____

What are they now? _____

How will these be effective? _____

What other steps would help? _____

What process do you use to determine your risk exposure? _____

What risk management techniques (probabilistic risk assessment tools, vulnerability assessments, cost/benefit models, etc.) are available to you to assess potential security threats? _____

What technologies are you employing to address security issues? _____

a. If none, why? _____

What problems or issues did you experience with the implementation and/or use of specific national security measures or technologies? _____

Can you summarize what other members of your industry are doing? _____

What research is being done that would assist you in meeting your national security needs?

What organizations do you and your industry rely on for the development of national (anti-terrorism) security measures (procedures, technology, training, etc.)? _____

Do you use training schools? If yes, what security procedures are employed at commercial training schools for your industry (e.g., student identification/verification procedures), and do you consider these to be effective? _____

Can you comment on what has been done in other countries to enhance the security of commercial bus safety? _____

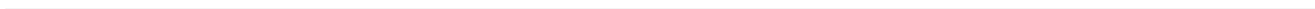
What national security measures were instituted by your clients, after 9/11, and how do these measures impact security and your operations? _____

What assistance, research, development, training, technology, and other activities or services would help you in achieving the desired and necessary level of security? Who should provide these needs? _____

Additional Space for Your Answers (Please indicate the question you are answering):

Other Security-Related Comments/Information:

Thank you for your assistance!



Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation